 # 99903538

Model 52/380 Crane

Revision Date 20061106

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

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Revisions

DATE	LOCATION	DESCRIPTION
20050627	PAGES 43,44	ROTATION TORQUE ERROR - CORRECTED TO 50,600 FT-LB (7 TM)
20061106	Sect. 4.5	Added manual override instructions.

CHAPTER 1

52/380 Loader

In This Chapter

1. Introduction

This instruction manual contains a description of the loader, instructions for operation as well as for maintenance and servicing of the loader.

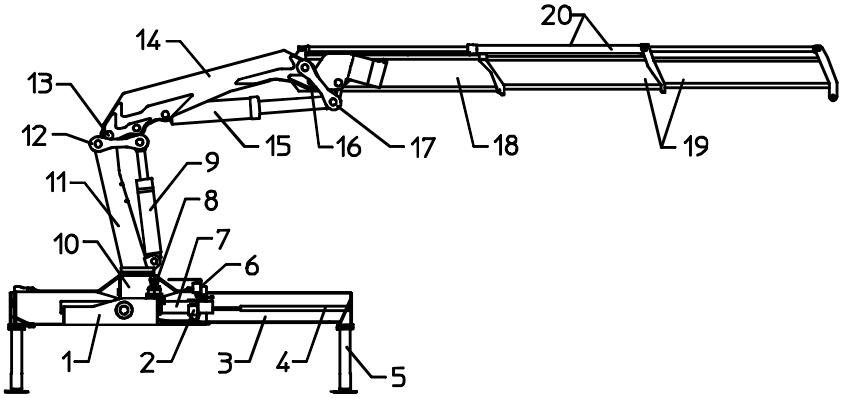
It is very important that the owner and operator are familiar with the contents of this manual as well as the **Safety Manual, the RCL Instruction Manual, and the Service Booklet** prior to beginning loader operation.

It is also important to attend the recommended service overhauls. These service overhauls are designed to secure operational safety at all times and will also be of importance in case of warranty claims at a later stage, where great importance will be attached to whether these overhauls have been carried through by an authorized IMT service point or not.

As IMT is constantly developing and improving the loaders, your loader model may have been changed slightly since printing of this instruction manual.

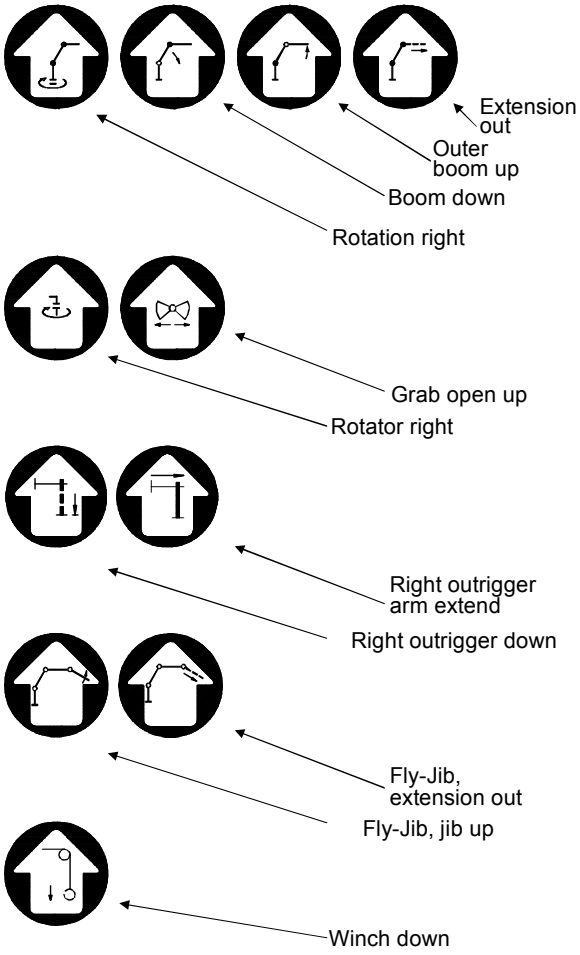
2. Description of Loader Terminology

The loader is designed as a truck-mounted loader and therefore stationary mounting of the loader, mounting on agricultural tractors, special purpose vehicles etc. must only take place according to specific agreement with IMT.



1.	Suspension Bridge	11.	Mast
2.	Hydraulic Control Valve	12.	Link Arm, Inner Boom
3.	Outrigger Arm	13.	Hinge Pin
4.	Extension Cylinder	14.	Inner Boom
5.	Outriggers	15.	Outer Cylinder
6.	Control Valve, Outriggers	16.	Outer Boom Pin
7.	Rotation System / Cylinder	17.	Link Arm, Outer Boom
8.	Planetary Gear Drive	18.	Outer Boom
9.	Inner Boom Cylinder	19.	Extension
10.	Base	20.	Extension Cylinder

3. Control Valve Symbols



Each control valve has a label showing the functions of that particular valve.

4. Operating Instructions

4.1a Safety Precautions

Before loader operation the operator must make sure that the loader operation does not entail any unnecessary risk. Special attention must be paid to the following factors:

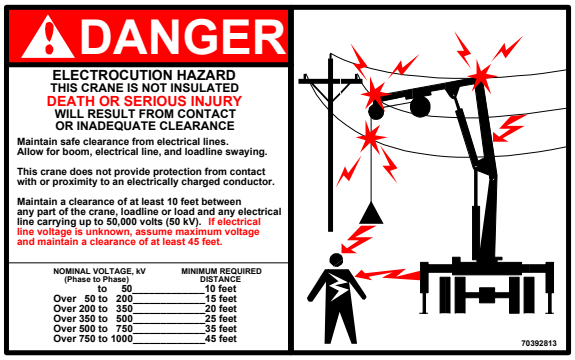
1 The ground must be sufficiently firm to take up the pressure from the outrigger legs. Use of steel plates under the foot plates are recommended in case of heavy lifting.

2 The ground must not be slippery (i.e. covered with ice or sand). When the parking brake is applied, the truck must be able to take up the horizontal forces from the loader without skidding or moving.

3 The truck must be parked in such a way that the operator has a complete view of the working area.

4 The operator must make sure that there are no electric wires or any other obstacles within the working radius of the loader.

5 The operator must inform any unauthorized persons that entry into the working area is not permitted.



For all work in the proximity of power plants or overhead wires the following general rules apply:

1 Due care and caution must be exercised in the planning, instructing for and execution of such work in order to prevent any risk or danger to persons, equipment or goods.

2 Any power supply plant, installation or wire must be considered live until the responsible power supply authority has provided a declaration to the opposite effect.

3 Any directions or guidelines from the responsible power supply authorities or public bodies should be strictly observed.

Any person or company directly responsible for the implementation of work in the proximity of overhead wires or electric power stations must make sure that all personnel involved in the execution of such work is familiar with any laws, rules or safety regulations, national as well as local, governing such work in the relevant country, territory or zone.

4.1b Engaging the PTO

1 Switch the change-over valve, if any, to “loader”.

2 Engage the PTO at low revolutions.

3 The engine revolution speed is regulated by means of the hand accelerator in order to ensure that the oil flow from the hydraulic pump corresponds to the recommended pump flow for the loader. When starting up in the cold, the oil should be allowed to circulate for a few minutes before operation starts.

4 Apply the vehicle parking brake.

Starting up:

a Pull out the emergency stop button – remember both sides of the loader, if necessary.

b Push the green button once. The “RUN” diode is lit and the safety system is activated.

4.1c Outrigger Functions

Push the yellow button twice and the “FUNC” and “F5” diodes are lit. After 2 seconds the diodes are turned off, but the outrigger function remains activated.

The outrigger function is activated. Complete the following items.

NOTE:

On certain loader models the outriggers are operated using of the radio remote control. See the IRC Instruction Manual.

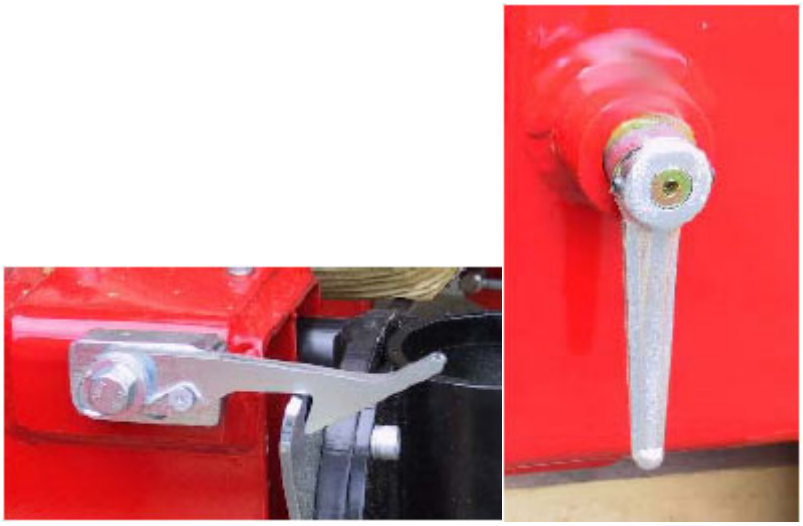
To return to loader functions,

Either activate one of the control levers of the loader’s control valve OR Push the yellow button twice. "FUNC” is lit and “F5” is turned off.

All loader functions are now active.

OUTRIGGERS

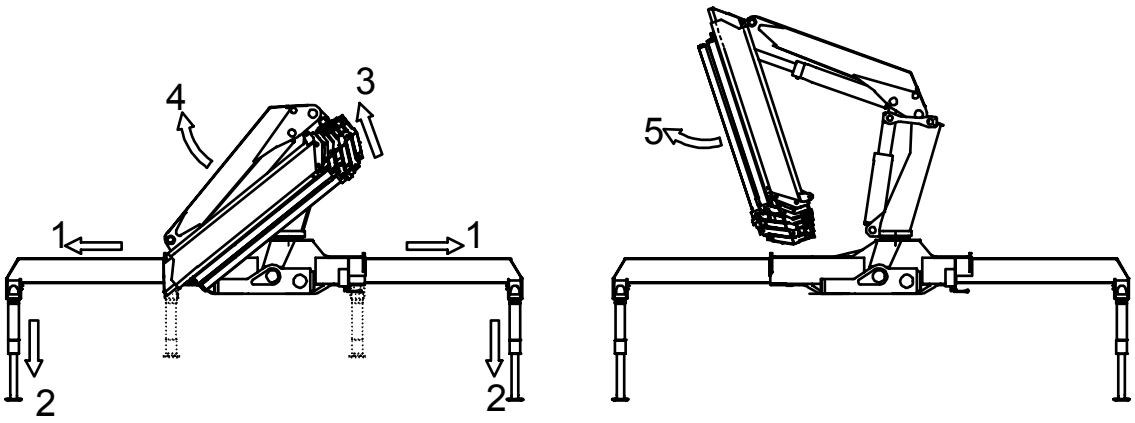
Release the outrigger lock and extend the outrigger arm completely, and lock it again. If the loader is equipped with a hydraulic extension function, it must only be used for extending and retracting the outrigger arm. The stability of the loader and the vehicle is based on the outriggers in their extreme position and the loader should only be used at maximum outrigger spread. The operator must know whether or not the vehicle is stable in the area in front of the outriggers (over the driver’s cab). Lower the outrigger legs just enough to raise the truck chassis a little in its suspensions. The tires must still have full contact with the ground. During loading of the truck the outrigger legs must be raised from time to time, to ensure that the truck carries the weight of the load. The outrigger legs are not designed to support this excessive load.



The best possible loader operation will be achieved when the vehicle is positioned as close to horizontal as possible. Therefore, the vehicle should be levelled to horizontal position by means of the outrigger legs before the loader is operated.

If the ground is not firm enough to take up the pressure of the outrigger legs, a steel plate, or the like must be placed under the foot plates.

4.2 Unfolding the Loader



1 Extend the outrigger arms completely. This also goes for the separate traverse (if any).

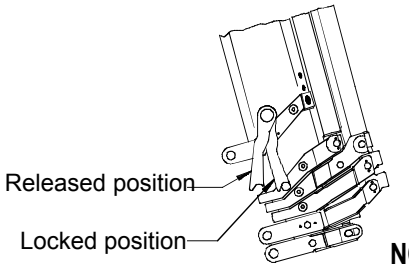
2 Lower the outrigger legs according to ***4.1c Outrigger Functions*** (on page 11) above. This also goes for the separate traverse (if any).

NOTE

The outer boom must be raised (the “outer boom down” movement of the lever), so that the outer boom is released from the bracket.

3 Raise the main boom and thereby release it from the bracket. Raise the inner boom somewhat above horizontal, so that the outer boom can be moved freely downwards.

4 Raise the outer boom until it is free of the base.



NOTE:

In case of loaders equipped with stop bracket on the outer boom, extend the outer boom extensions a little until the stop bracket is released.

4.3 Using the Loader

When the loader has been unfolded, work can start.

The lifting capacity of the loader is shown on the lifting capacity diagram on the loader and in the **Loader Data**. The capacity limits indicated must never be exceeded.

The loader is designed to *lift* loads vertically and therefore diagonal stresses should be avoided. Consequently it is not permitted to drag loads across the ground using the extension cylinders or the rotation system. These functions must only be activated once the load is free of the ground.

When mounting a grab, the total weight (grab, rotator and sand/contents) must not exceed the loader's lifting capacity at maximum reach. The grab/clamshell bucket must be used for moving excavated soil only. Excavating is not permitted.

CAUTION

Damage caused by improper loader operation will not be covered by the IMT warranty.

If the load is extended so far that the loader's lifting capacity is exceeded, the load moment increasing movements will be stopped. Please see the **Instruction Manual on the RCL safety system.**

The inner boom will slowly begin to sink in case of overloading. To stop this movement, the load should be brought closer towards the loader mast by means of the "extension retract"-movement.

WARNING

Never stand under the boom when the loader is working!

NOTE

Position the truck as closely to the load as possible, so that the load can be lifted on the shortest possible boom.

The rotation system should be operated with care, especially when the inner boom is at an acute angle with the outer boom.

The outriggers must not be activated when the loader is working.

Never drive off with a suspended load.

4.4 After Operation

The loader is folded up by reversing the procedure described in ***4.2, Unfolding the Loader***.

If the boom is parked on the truck platform it must be properly secured to prevent the boom from swinging out during transport. Also the operator must check that the total height does not exceed 13'-1" (4000 mm).

CAUTION:

It is very important to check that both the outrigger lock and safety lock are in place and properly secured, otherwise the outrigger arm might extend by itself during transport.

If the loader is equipped with swing-up outrigger legs they must also be secured in position before driving off. Before the vehicle is started, disengage the PTO and turn off the pump.

4.5 Manual Override Instructions - Crane and Outriggers

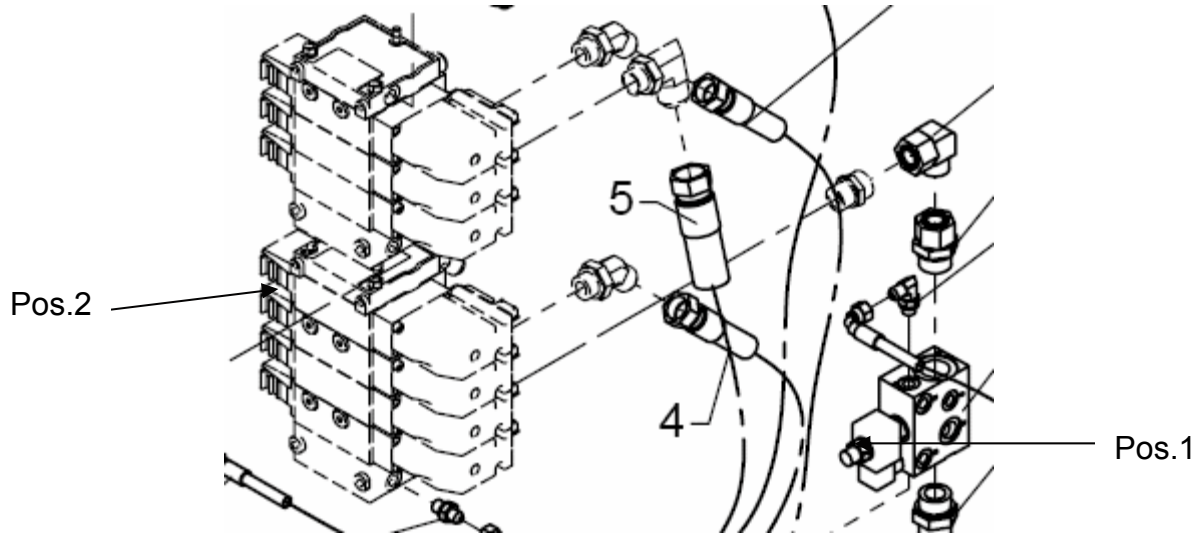
Crane Manual Override Instructions

1 Remove blue cover (Pos. 1) and hold down push button. (You may put a nut in the blue cover and mount it again so it holds down the push button.)

2 Mount a 9 mm combination wrench on the valve section for the required function (Pos. 2). The wrench will function as a valve handle so you can operate the crane.

CAUTION

For emergency manual override only!



Outrigger Manual Override Instructions

1 Remove blue cover (Pos. 1 in crane override instruction, and hold down push button.

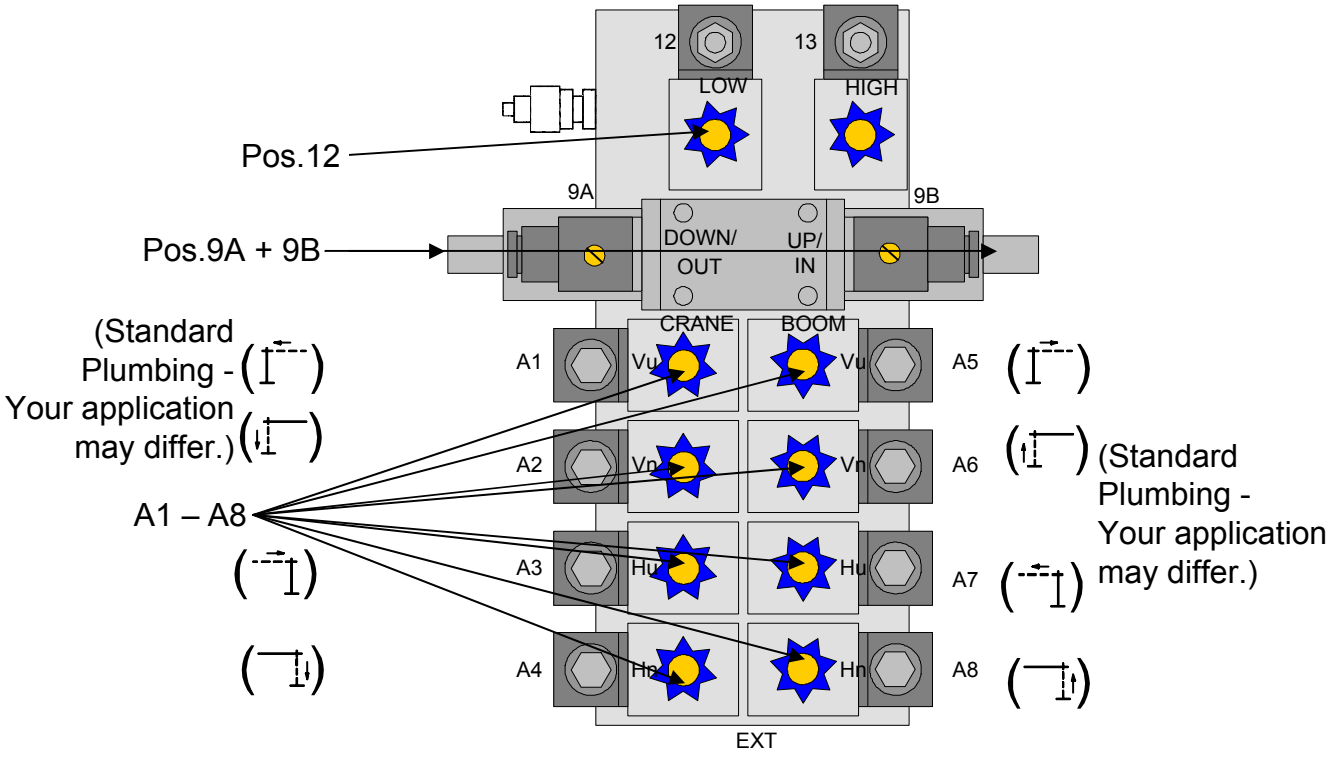
2 Remove the blue cover (Pos. 12) and unscrew the brass screw.

3 Depending on the crane function you require, screw down the black thumb screw at Pos. 9A or 9B. This allows oil flow to the outrigger valve bank.

4 Select the outrigger function required (Pos. A1 through A8). Remove the blue cover for the desired function, and unscrew the brass screw to allow oil flow to the desired outrigger function. The standard outrigger function is shown next to the valve position. Use caution - your crane may have custom plumbing!

CAUTION

For emergency manual override only!

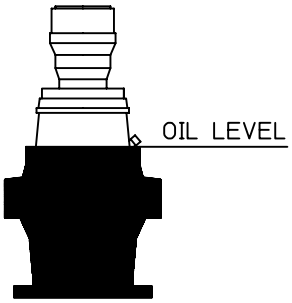


5. Maintenance

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

At daily or weekly intervals, depending on frequency of loader application, complete the following maintenance steps:

1 Check the oil level in tank. The oil must be visible in the oil level glass of the tank when the loader is folded. If the loader is equipped with a planetary gear, check the oil level in it.



2 Make sure that any defects, damage or leaks are repaired at an authorized IMT service point as soon as they are discovered.

3 Check that loader is safely mounted to the truck.

4 Slide blocks and bushings reduce friction and therefore they are naturally subject to wear and tear. Replace slide blocks if too much free play is found in the boom system. Replace bushings before the metal components physically touch each other.

5 Check all hoses for defects and kinks.

6 Check that hooks, wire ropes, straps and the like are in good working order.

7 Check all lock pins and bolts for wear and tear.

Service overhauls should be undertaken in accordance with the Service Booklet. In case of any warranty claims at a later date, great importance will be attached to observance of these service overhauls.

5.1 Lubrication Chart

Lubrication Point	Frequency
Mast / planetary gear	After 50 hours of operation / 1 month (whichever occurs first)
Pinion ball bearings	After 50 hours of operation / 1 month (whichever occurs first)
Base bearings	After 20 hours of operation / 1 week (whichever occurs first)
Extension system / slide blocks	After 50 hours of operation / 1 month (whichever occurs first)
Guide rail on extension cylinders	After 50 hours of operation / 1 month (whichever occurs first)
Pins / bolts	After 50 hours of operation / 1 month (whichever occurs first)
Outrigger arms	As required
Control valves and rod connections	Oil spray as required

5.1a Greasing Rotation System

Turntable

Keep the cogging of the turntable greased using a lubricating brush to apply grease through a grease zerk on the top of the base in front of the planetary gear.

Use water-repellant, calcium-based lubricating grease which meets NLGI 2, such as Statoil GreaseWay CaH 92. Grease after 50 hours of operation / 1 month (whichever occurs first).

Turntable Bearing

Grease the turntable bearing through grease zerks on the turntable. Apply grease in all zerks such that visible new grease appears at the edges of the seals. Rotate at least twice during greasing.

Use lithium-based lubricating grease which meets NLGI 2, such as Statoil Uniway Li 62. Grease after 50 hours of operation / 1 month (whichever occurs first).

5.1b Gear Greasing

Reduction Gear

The reduction gear of the planetary gear runs in oil. Remove the air filter on the nipple at the top of the gear, and fill up with oil, until it becomes visible in the oil level glass next to the air filter. Drain out the oil by removing the plug.

Lubrication data

Gear oil - VG 150 specification - e.g. Statoil GearWay G5 80 W-90.
Oil capacity: 1.4 gal (5.4 l)
Change the oil at each annual service overhaul.

Brake Unit

The brake discs are greased by the oil in the reduction gear. At a normal oil level (the oil must be visible in the oil level glass), the lower half of the disks rotate in oil.

Output Shaft Lower Bearing

The output shaft with the driving pinion is built in two roller bearings. The upper bearing lies in the oil, which is filled into the reduction gear. The lower bearing is greased through a grease nipple at the bottom of the planetary gear.

Lubrication data:

Use lithium-based lubricating grease per NLGI 2, e.g. Statoil Molyway Li 62. Grease/fill up at each annual service overhaul.

5.1c Greasing the Winch

The hydraulic winch is filled with gear oil in the planetary gear built into the winch drum.

Draining Oil

- The loader and winch must be in a horizontal position.
- Unwind the winch wire until 2 plugs become visible on the drum surface. The plugs are displaced by 90°.
- Turn the drum so one of the plugs turns downward. Remove both plugs and drain the oil.

Filling with Oil

- Turn the winch drum so the threaded hole turns upwards.
- Fill with gear oil until the winch drum is half filled, i.e. when the oil starts dripping from the horizontal threaded hole.

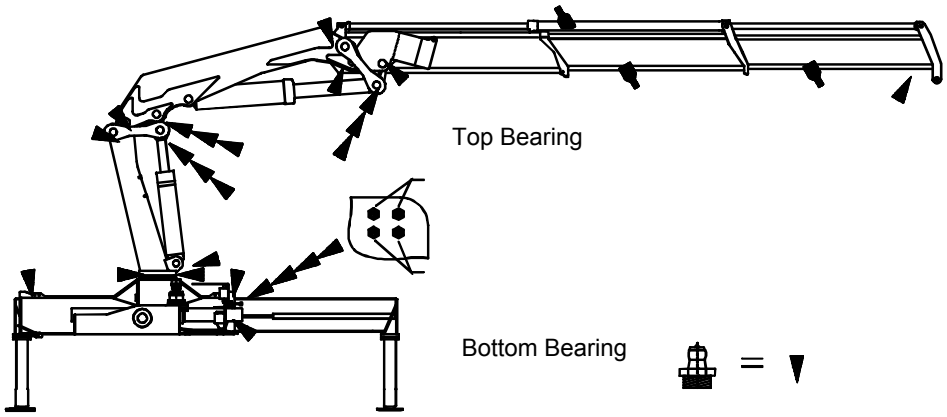
Lubrication Data

Use VG150 Gear Oil such as Statoil GearWay G5 80 W-90.

Oil Capacity - 1.4 quarts (1.3 liters)

Change the oil at each annual service overhaul.

5.2 Lubrication Diagram



Example of a lubrication chart. For specific loader model, please see lubrication label on loader/Fly-Jib.

The rotation system should be activated and the loader swung from stop to stop several times within the whole rotation area at the same time as the bearings in the base are lubricated.

Requirements for hydraulic oil and lubrication grease are stated in the Service Booklet.

The telescopic extensions and the planetary gear are lubricated with a special grease, see the Service Booklet.

CAUTION

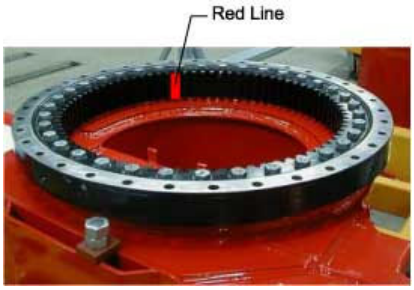
If the loader is not folded after use, make sure that all cylinders are completely retracted at least once a day. The protective oil coat on the piston rods is thus maintained, preventing corrosion from occurring on the chromium surface.

5.3 Rotation System Mounting

Before mounting of the turntable, lubricate the surfaces between the turntable and the base / the column with Loctite 275. Drying time: 3 – 6 hours.

The turntable has a hardened overlap which should be oriented in a direction so that the stresses are as minimized.

The internal ring of the turntable has a hardened overlap (teeth and ball groove) marked by a painted red line. The red line must be oriented so that it turns in an angle of approx. 45 degrees in relation to the rear mounting pockets of the base. See diagram.



The external ring of the turntable must be oriented so that the filler plug next to the type plate turns towards the planetary gear. There is a hardened overlap next to the filler plug (ball groove).

A blue line has been painted on one of the teeth. When positioning the column, it must be oriented so that the planetary gear sits opposite the blue line. At this point, the turntable has its minimum diagonal measures. Here the meshing of the teeth must not be tight. The column can be moved a little bit in the fitting with the external ring, if necessary.

Bolt Connections

M20, dacromet surfaced, steel quality 10.9, bolts have been used to mount the turntable.

When mounting the turntable on the base, no washers are being used. The internal ring has a very hard surface. When mounting the column on the turntable, use washers both at the bolt head and at the nut. Before mounting, grease the thread, the under side of the bolt heads and the washers.

Use lithium-based lubricating grease which meets NLGI 0 specifications, such as Statoil Molyway Li 732.

The bolts must be tightened in a certain order. See bolt-tightening sequence.

Tighten all bolts with a torque of 275 psi (38 Kgm). Tighten in three steps according to the tightening sequence:

1 1st turn 72 psi (10 kgm)

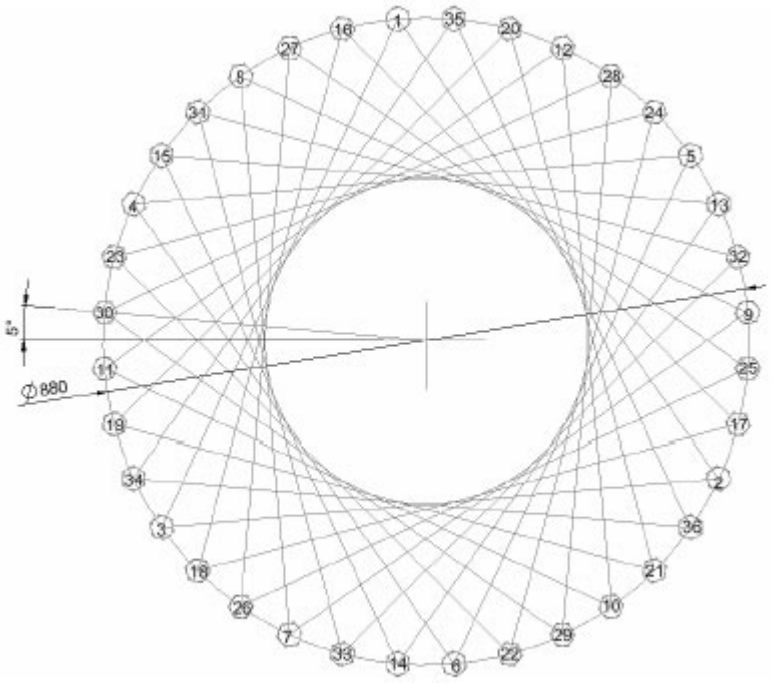
2 2nd turn 181 psi (25 kgm)

3 3rd turn 275 psi (38 Kgm)

Tighten up the bolts at each annual service overhaul.

CAUTION

Do not reuse mounting bolts. Replace bolts after removal.



5.4 Mounting Planetary Gear on Model 52/380

Before mounting planetary gear, lubricate the surfaces between the gear and the mast with Locktite 275. (Drying time - 3 to 6 hours.) Lubricate the snap ring with Locktite 274, and lubricate the bolt threads with Locktite 243. Use washers at the bolt head. Tighten bolts to 88.5 psi (120 Nm).

5.5 Hose Reel Spring Tension on Model 52/380

If a hose reel has been repaired, the built-in spring must have a certain tension before the hose reel is fitted on the boom system again.

- Wind the total length of the hose on the hose reel
- Mount the hose reel on the boom, and release the spring of the hose reel
- Turn the reel a number of turns, i.e. apply tension. See the table.
- Then pull the hose to the bracket where the hose connections are fixed.

Hose Reel Type	Hose Reel Spring Tension
Double hose reel on 52/380 (two reels)	8 turns
Single hose reel on Fly-Jib 1200	2 turns

6. Optional Extras

Various extras are available with the loader:

- Fly-Jib
- Manual extensions
- Winch
- Pallet fork
- Grab / Rotator
- Remote control

Some loaders have optional extras such as manual extensions, winch, and Fly-Jib on a standard basis.

If these extras are standard, you should find technical data and pressure setting diagrams as well as lifting capacity diagrams for the Fly-Jib in this manual.

You should always consult an authorized IMT dealer/service point before mounting any kind of optional extra. This also applies to equipment already in your possession.

Please note: All optional extras on the loader must be protected by the safety system.

See the **Instruction Manual – RCL Safety System.**

CAUTION

Welding or drilling into the structural components of the loader will automatically invalidate any liability on the part of IMT.

6.1 Manual Extensions

When working with manual extensions, please note:

CAUTION

Never exceed the indicated load limits for manual extensions.

Use great caution when activating the rotation system during work with manual extensions.

If the loader has manual extensions or other extras, reduce the lifting capacity of the loader by the weight of the extras.

Always check that lock bolts are fitted correctly with a pin.

If the loader is fitted with several extensions and a certain lifting job requires the use of one extension only, use the extension with the largest box profile.

Only pull out the manual extensions when the outer boom is as close to horizontal as possible.

If the outer boom is pointing downwards when the lock bolt is removed, the extensions will drop out at uncontrollable speed. This may ruin the stop at the risk of resulting in personal injury.

The load must not be extended from the stop, i.e., the extension lock pins must always remain in place.

6.2 Winch

Instructions for using the winch as well as technical data are included in the Instruction Manual, Winch. The winch is protected by the safety system. See the Instruction Manual – RCL Safety System.

1 A hydraulic 5511 lb (2.5 metric-ton) winch is fitted on the stowing bracket at the back on the right side of the main boom.

2 The stowing bracket with winch can be moved up on top of the main boom by means of a hydraulic rack/pinion system, and thereby give room for folding both the loader and the Fly-Jib.

3 The winch safety system includes:

- Stop of loader functions that may overload the wire
- Ease stop when there are three cable winds remaining on the drum
- Hoist stop in case of too much wire on the cable drum.

6.2a Winch Technical Information

Winch Drum

Drum Diameter	9.8" (250 mm)
Drum Length	9.4" (240 mm)
Diameter, Drum Flanges	14.96" (380 mm)

Gear Box:
Integrated in the winch drum
Gear ratio: 49.5:1

Brake Unit:
Brake Capacity: 13daNm

Winch Motor:
Displacement: 1.95 in³/rev (32 cm³/rev)
Speed (at 17.2 gpm (65 lpm): 1930 rpm

Winch Performance:

The performance of the winch is related to the following data:
Necessary oil pressure when starting up: 3336 psi (230 bar)
Oil pressure during operation: 2756 psi (190 bar)
Oil flow: 17.2 gpm (65 lpm)
Wire: Ø .47" (Ø 12 mm)

	Wire Pull	Wire Speed	Wire Capacity
1st Layer	7033 lb (3190 kg)	105' /min (32 m/min)	39'-12" (12 m)
2nd Layer	6449 lb (2925 kg)	114'-10" /min (35 m/min)	98'-5" (30 m)
3rd Layer	5941 lb (2695 kg)	121'-5" / min (37 m/min)	164'-0" (50 m)
4th Layer	5512 lb (2500 kg)	131'-3" / min (40 m/min)	232-11" (71 m)

6.3 Fly-Jib

The Fly-Jib is protected against overloading by the RCL Safety System in the entire lifting area. See the **Instruction Manual – RCL Safety System.**

CAUTION

The load limits indicated on the lifting capacity diagram of the manual extensions must never be exceeded.

When the Fly-Jib is dismounted, all quick-release couplings must be equipped with dust caps in order to avoid penetration of dirt in the hydraulic system.

Also carefully fit the dummy plug in the socket on the loader, otherwise the safety system will indicate an error. Avoid damaging the plug when mounting and dismounting. Keep the dummy plug in the driver's cab when not in use.

When the Fly-Jib is mounted, always check that the lock bolt is fitted correctly with a pin.

Always operate the loader in a calm and considerate way when working with a Fly-Jib. Special care should be taken when operating the rotation movement.

Fly-Jib Features

1 The Fly-Jib is fitted with two jib cylinders, one on each side of the jib. This reduces space requirements when the loader with Fly-Jib is folded. Furthermore there will be sufficient space for the wire routing between the cylinders, when a winch is fitted.

2 The Fly-Jib and the jib extensions have been cut off diagonally both at the front and at the back to give a large overlap of the extensions both in case of positive and negative load.

3 PETP slide blocks have been fitted everywhere. It will thus be possible to work with a negative load, e.g. in case of inspection of a bridge (the Fly-Jib turns backwards under the jib.

4 The slide blocks can be replaced from the outside without disassembling the jib extensions.

7. Lifting Capacity and Lifting Capacity Diagrams

7.1 Lifting Capacity Labels on the Loader

From the factory, the loader is equipped with lifting capacity labels for the loader as well as for the optional extras, if any (manual extensions, Fly-Jib). Like all labels on the loader, these labels must be intact and legible.

If a label has been damaged or removed, you can get a new one from IMT. Use the part number at the bottom of the label, if any, or see the spare parts catalog.

7.2 52/380 Lifting Capacity Diagrams

As a supplement to the loader's lifting capacity labels, the **Loader Data** contain load and lifting capacities of the different K-versions in standard applications, i.e. special applications and customized loaders and options are not taken into consideration.

In these cases we refer to the supplementary documentation delivered and/or the lifting capacity labels on the loader.

The lifting capacity limits indicated must never be exceeded.

IMT
MATERIAL HANDLING SYSTEMS

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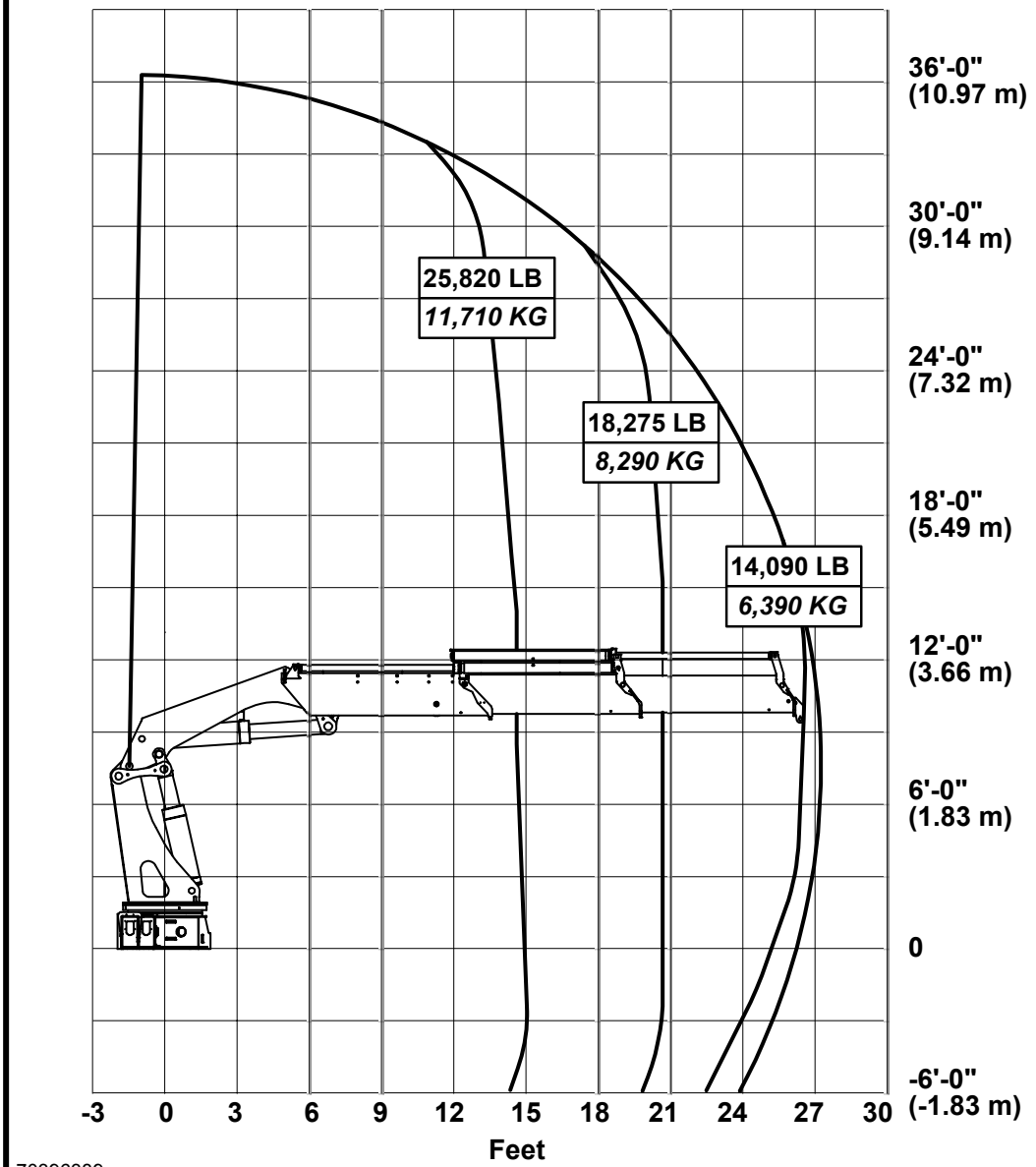
Model 52/380 K2

- 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.



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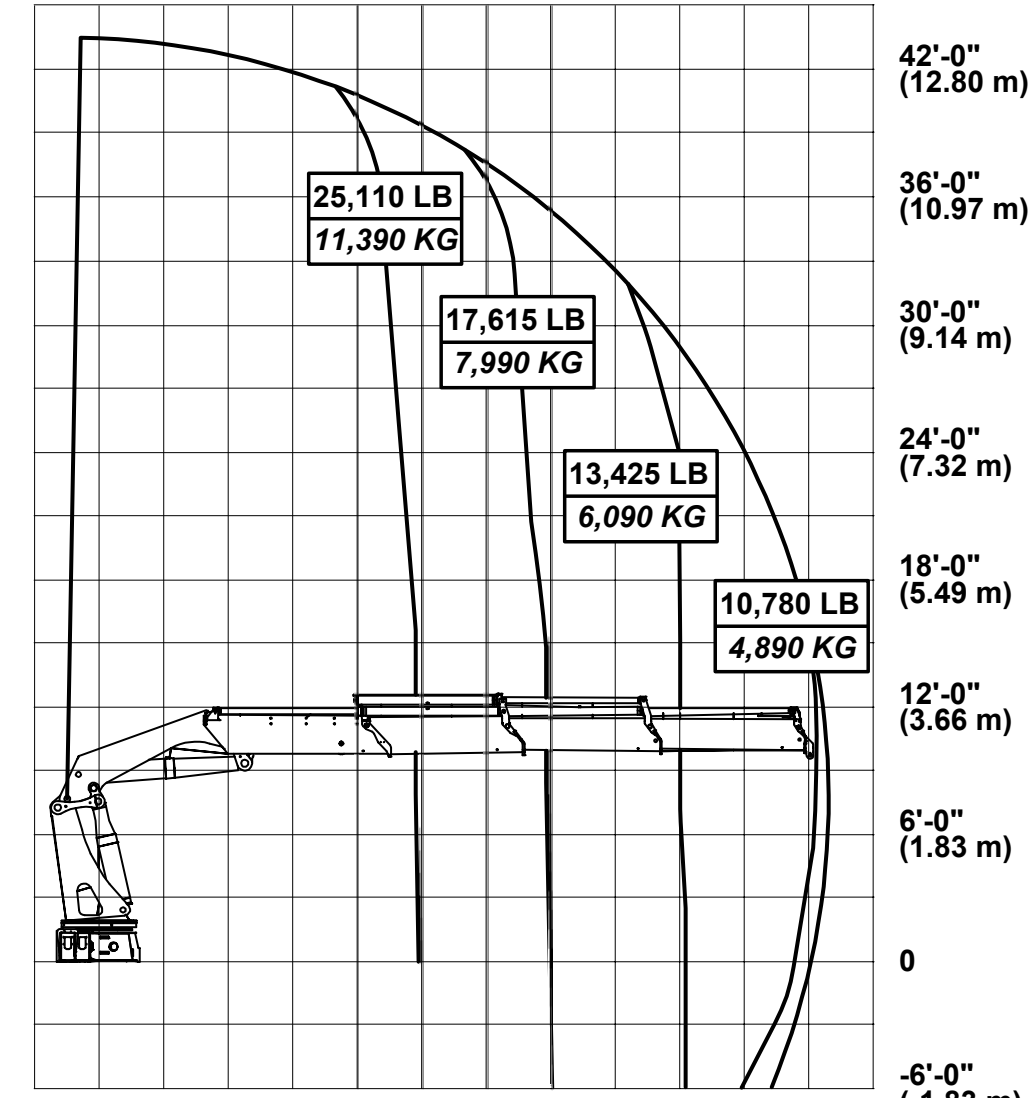
Model 52/380 K3

- 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.



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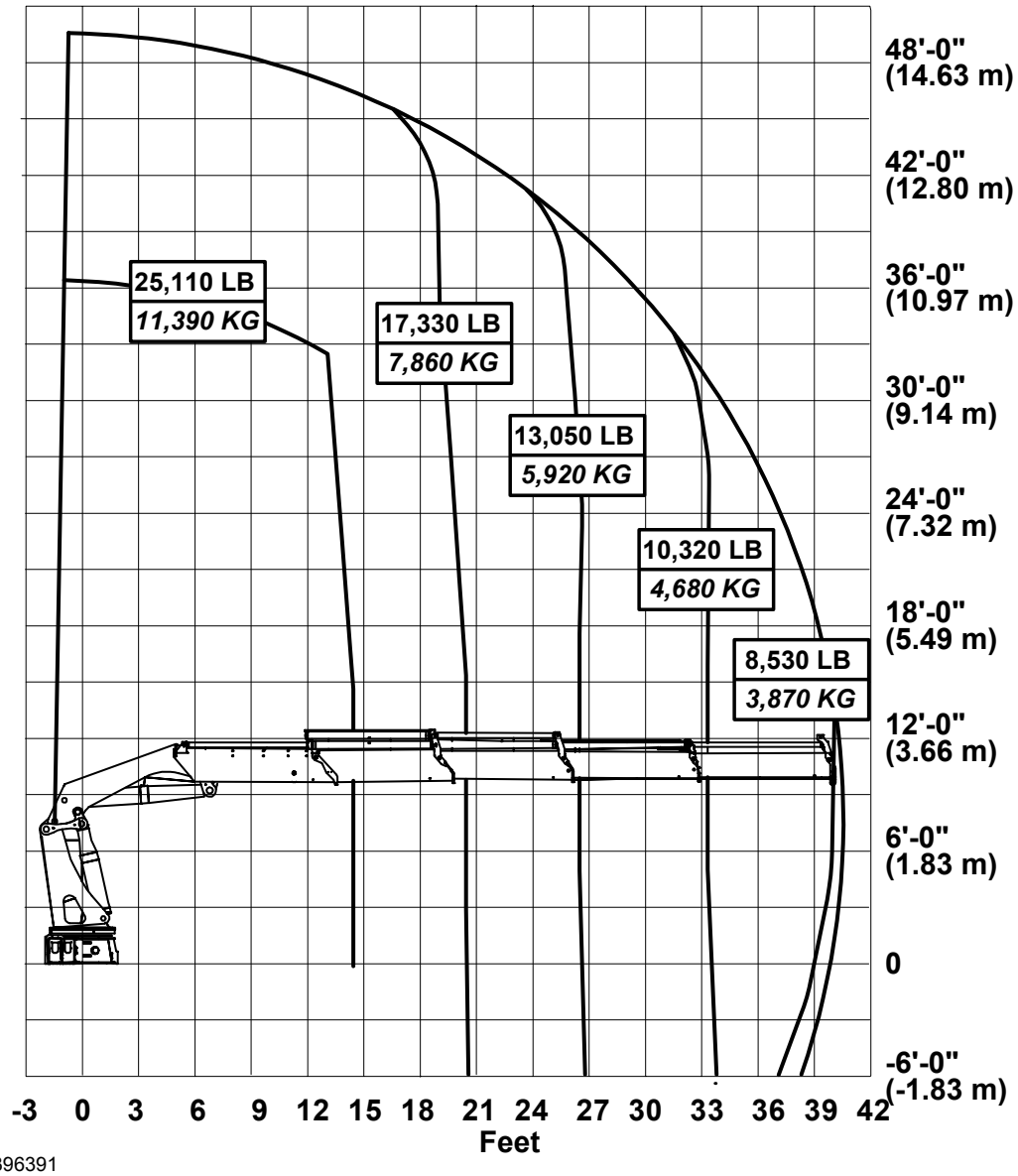
IMT
MATERIAL HANDLING SYSTEMS

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

Model 52/380 K4

- 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.



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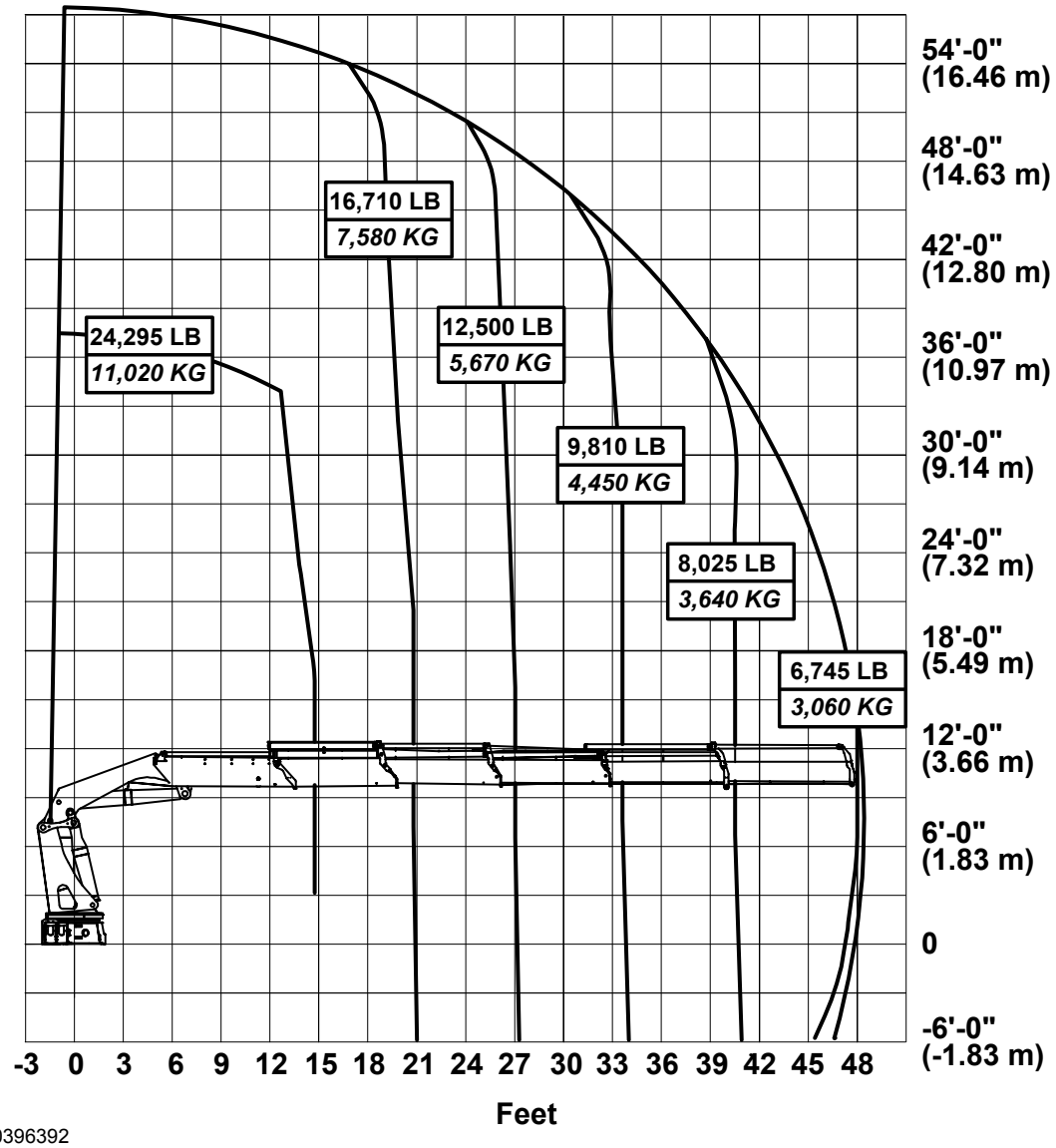
IMT
MATERIAL HANDLING SYSTEMS

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

Model 52/380 K5

- 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.



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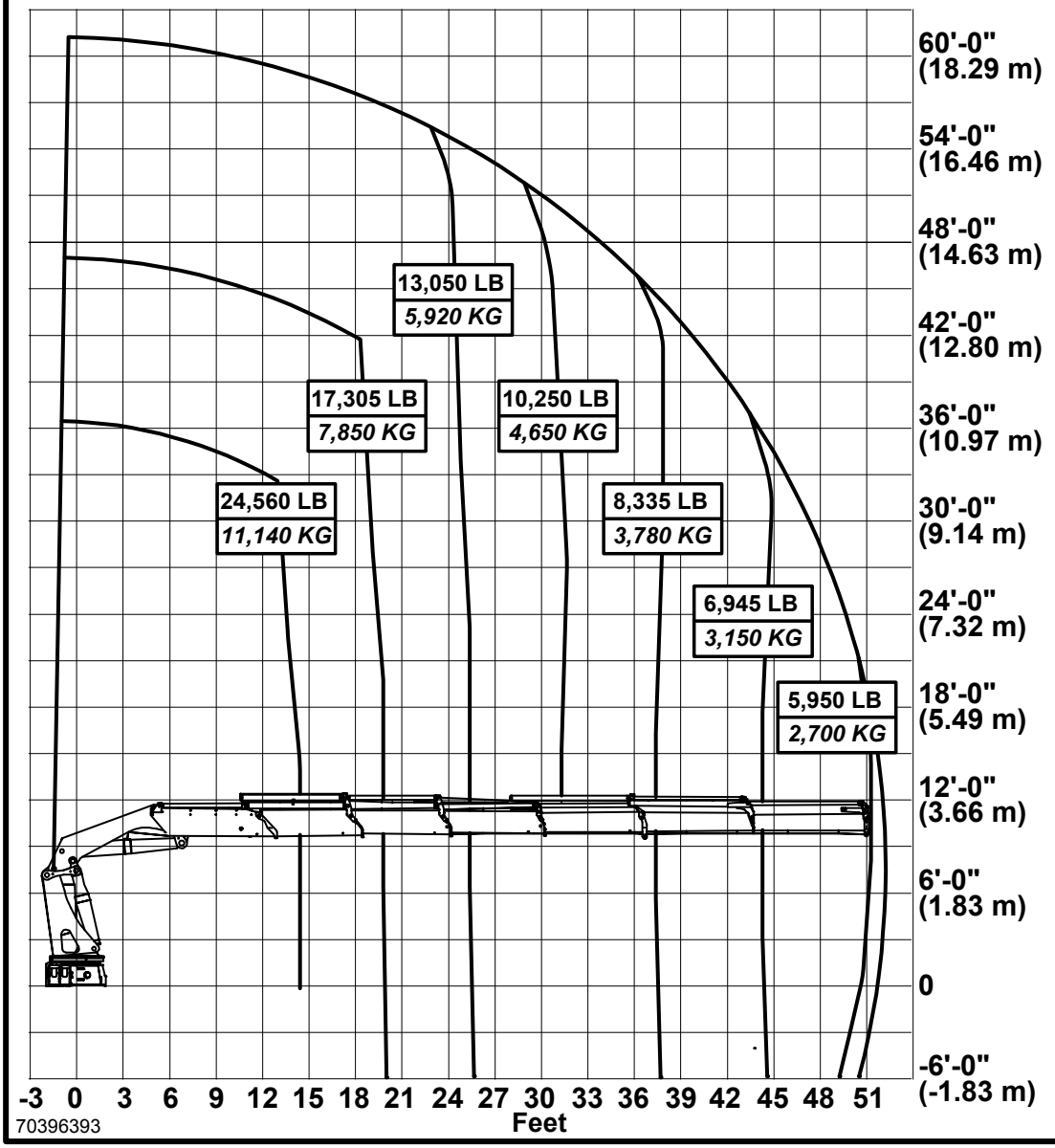
IMT
MATERIAL HANDLING SYSTEMS

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

Model 52/380 K6

- 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.



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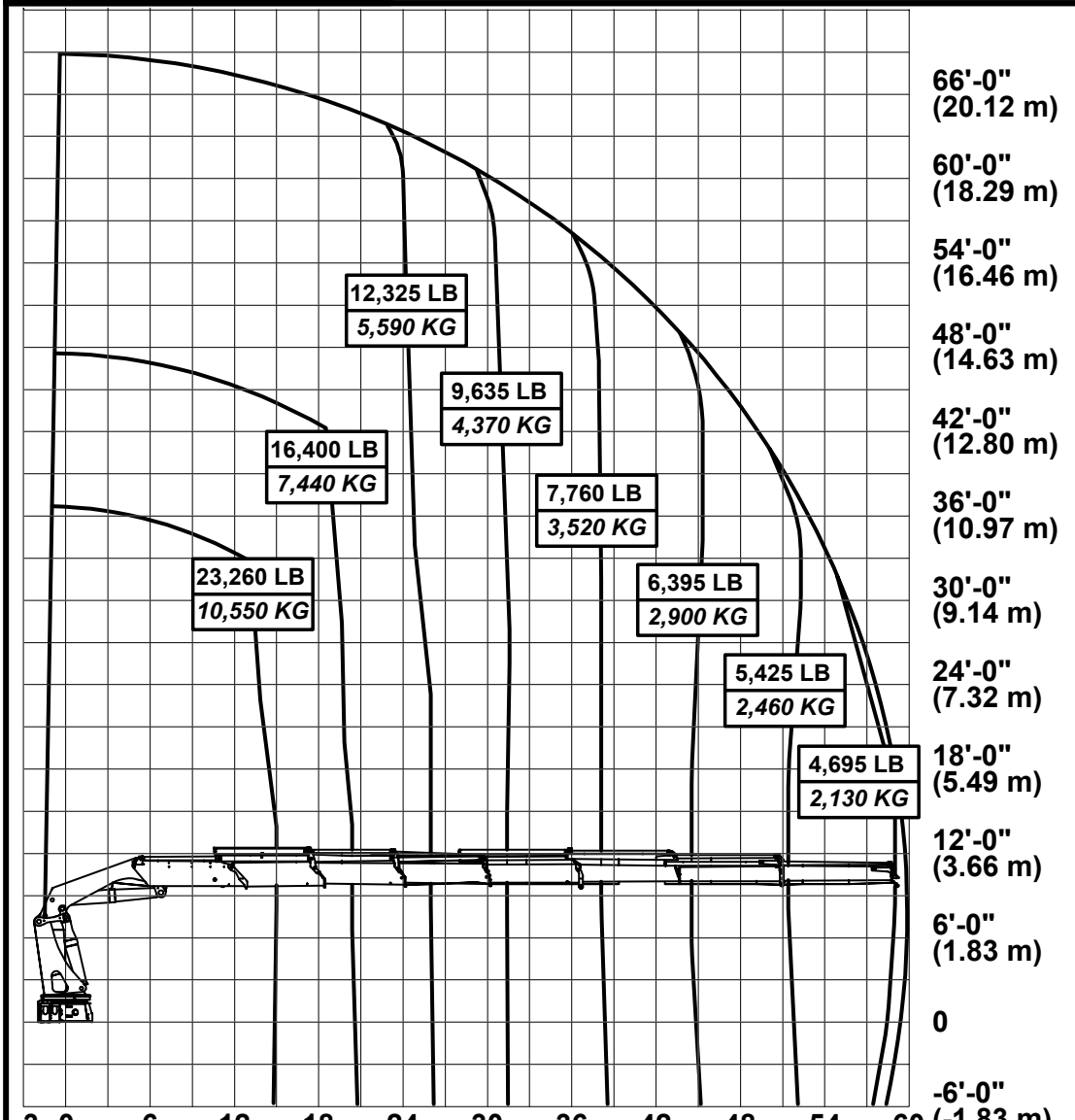
IMT
MATERIAL HANDLING SYSTEMS

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

Model 52/380 K7

- 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.



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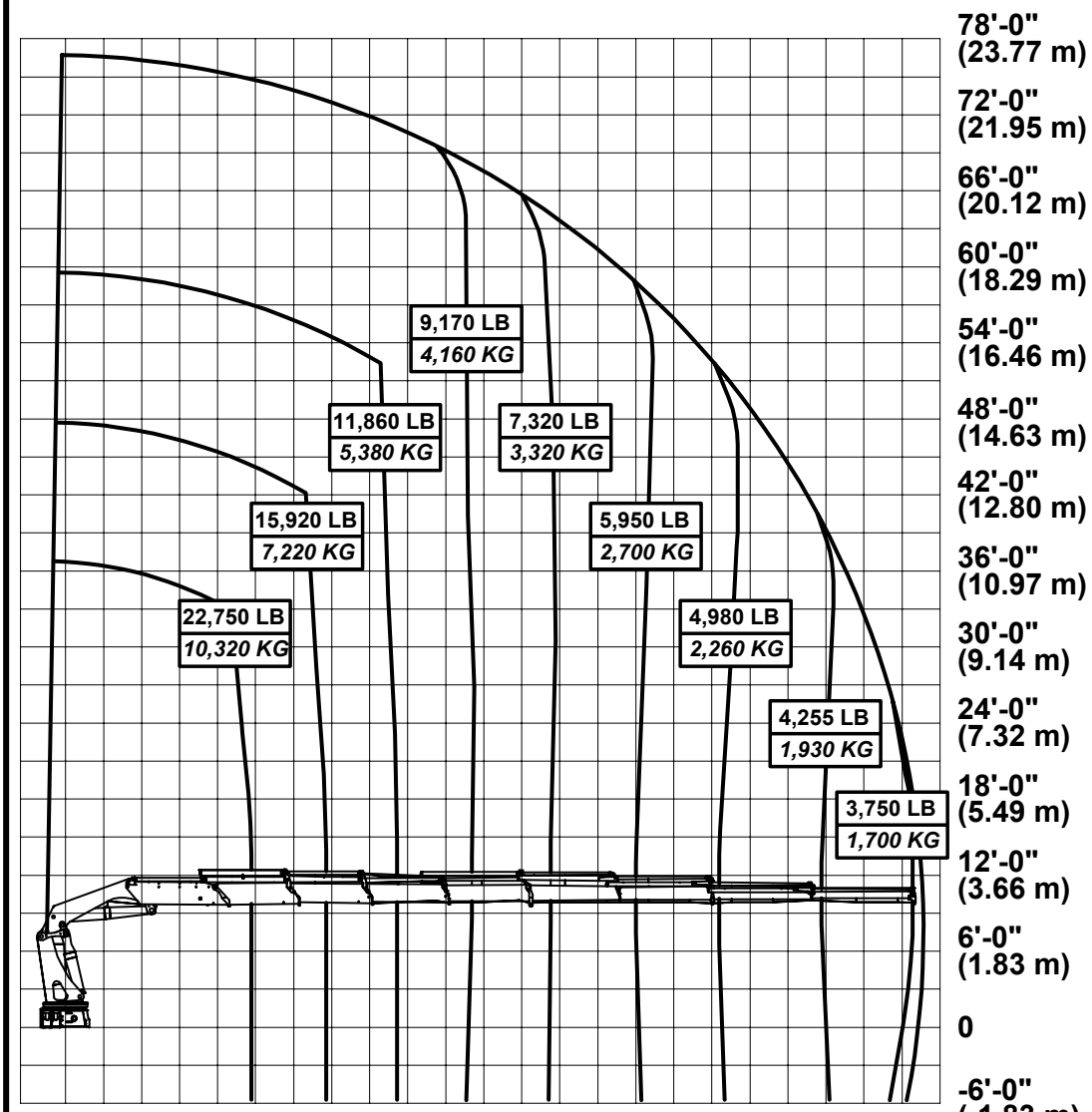
IMT
MATERIAL HANDLING SYSTEMS

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

Model 52/380 K8

- 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.



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8. Technical Data

The **Loader Data** contain tables with technical data on loader and Fly-Jib respectively, if a Fly-Jib is available as standard.

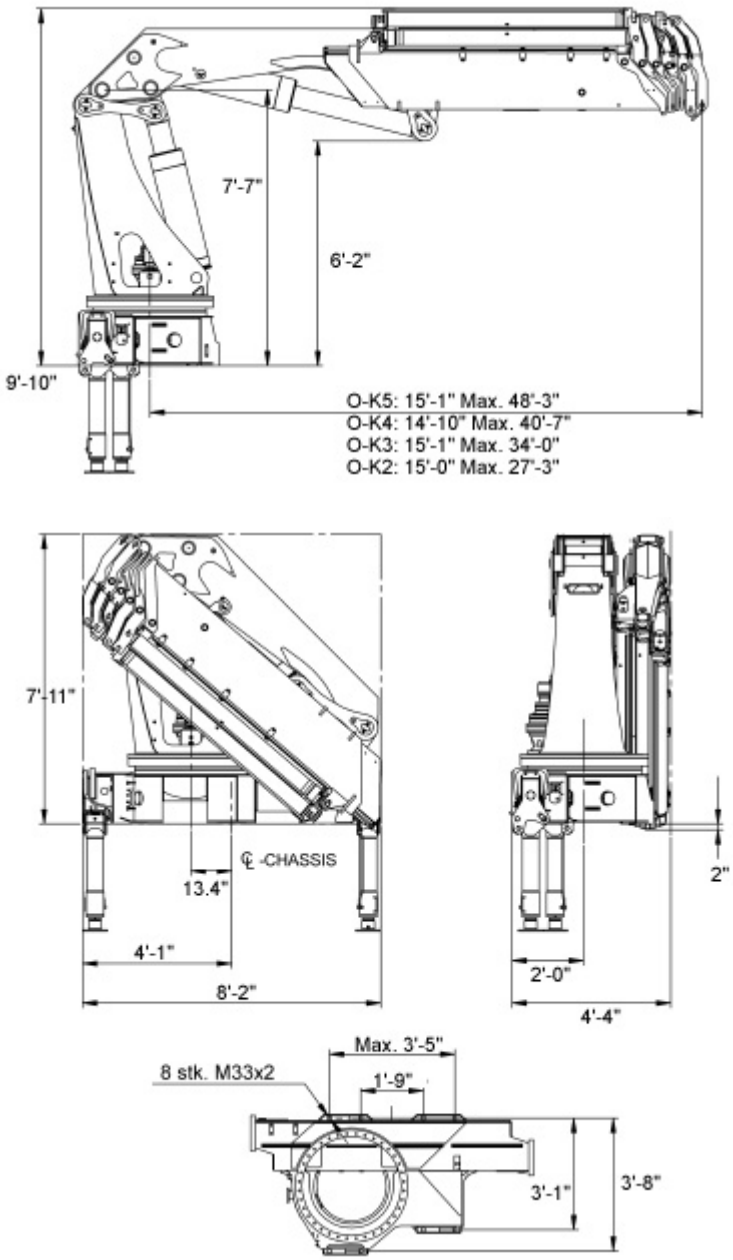
8.1 Loading Groups

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

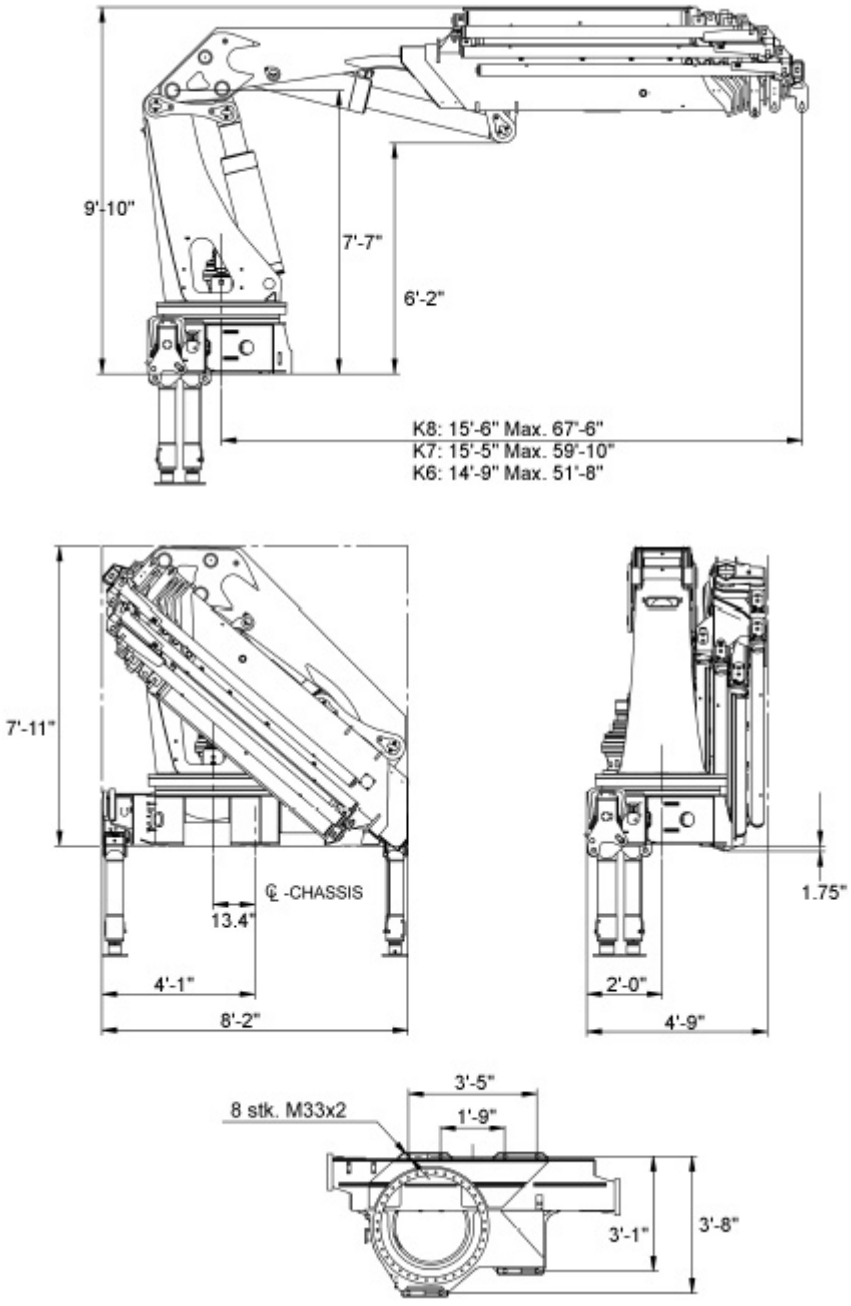
In the standard application, the loader belongs to a certain loading group indicated by the last digit of the loader type denomination. (i.e.: 2823-K2 means a 2820-K2 loader classified in loading group B3).

If the loader is stationary or the working speed increased, for instance by means of a dual circuit hydraulic system (2 pumps), the load moment of the loader is reduced.

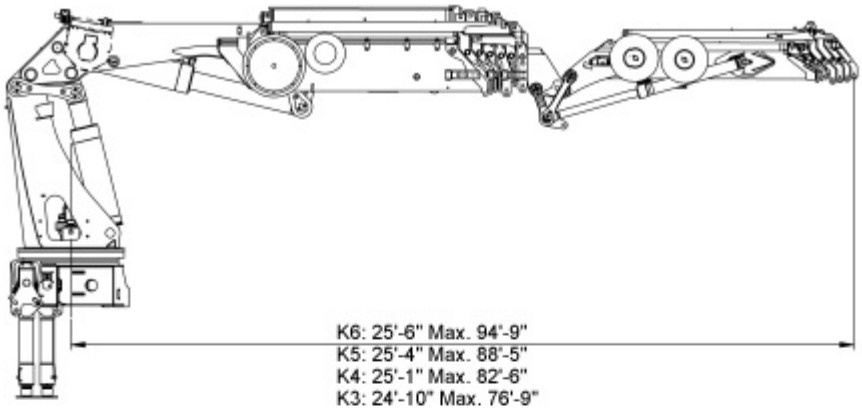
52/380 K2-K5 Dimensional Drawings

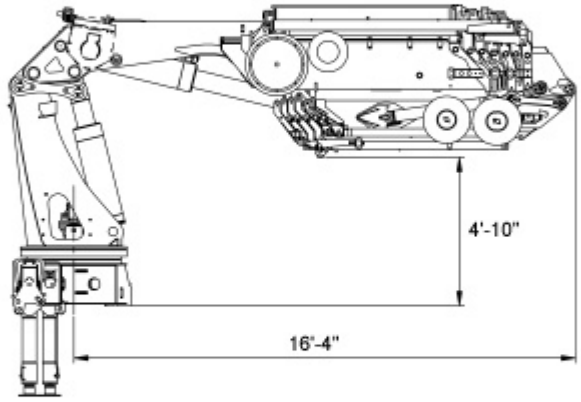


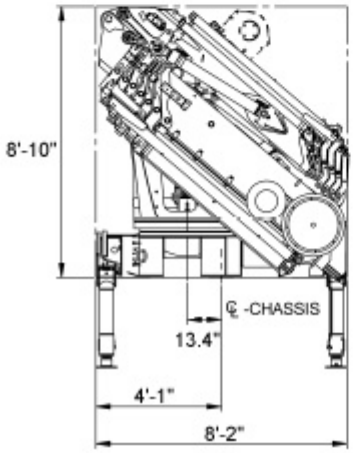
52/380 K6-K8 Dimensional Drawings

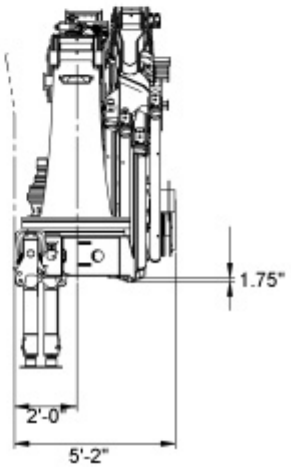


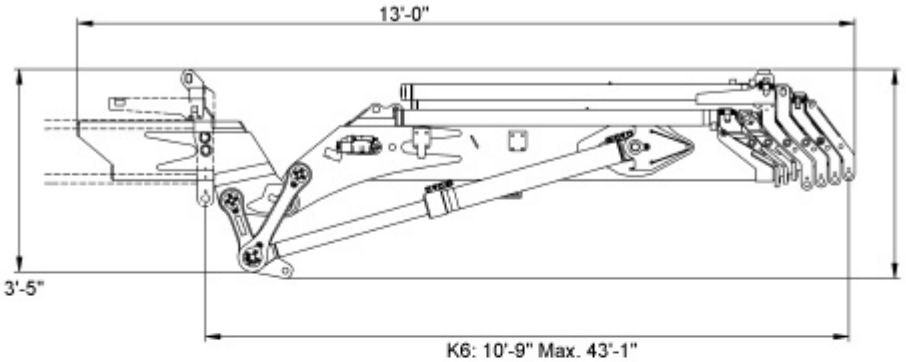
52/380 Dimensional Drawings w/Fly-Jib FJ1200



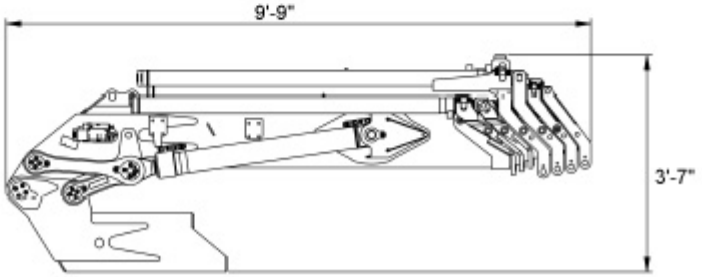








K6: 10'-9" Max. 43'-1"
K5: 10'-6" Max. 36'-9"
K4: 10'-4" Max. 30'-10"
K3: 10'-1" Max. 25'-1"



Technical Data 52/380 K2 - K5

PERFORMANCE

	K2	K3	K4	K5
Load Moment	379,009 ft-lb (52.4 tm)	370,330 ft-lb (51.2 tm)	363,097 ft-lb (50.2 tm)	358,757 ft-lb (49.6 tm)
Hydraulic Reach	27'-4" (8.32 m)	34'-0" (10.36 m)	40'-7" (12.37 m)	48'-3" (14.71 m)
Hydraulic Telescopic Movement	11'-0" (3350 mm)	16'-11" (5150 mm)	23'-2" (7050 mm)	29'-10" (9100 mm)
Hydraulic Lifting Capacity	25,815 lb @ 14'-7" (11710 kg @ 4.45 m) 18,275 lb @ 20'-8" (8290 kg @ 6.30 m) 14,090 lb @ 26'-11" (6390 kg @ 8.20 m)	25,110 lb @ 14'-9" (11390 kg @ 4.49 m) 17,615 lb @ 20'-10" (7990 kg @ 6.34 m) 13,425 lb @ 27'-0" (6090 kg @ 8.24 m) 10,780 lb @ 33'-7" (4890 kg @ 10.24 m)	25,110 lb @ 14'-5" (11390 kg @ 4.40 m) 17,330 lb @ 20'-6" (7860 kg @ 6.25 m) 13,050 lb @ 26'-9" (5920 kg @ 8.15 m) 10,320 lb @ 33'-4" (4680 kg @ 10.15 m) 8,530 lb @ 40'-0" (3870 kg @ 12.25 m)	24,295 lb @14'-9" (11020 kg @ 4.49 m) 16,710 lb @ 20'-10" (7580 kg @ 6.34 m) 12,500 lb @ 27'-0" (5670 kg @ 8.24 m) 9,810 lb @ 33'-7" (4450 kg @ 10.24 m) 8,025 lb @ 40'-6" (3640 kg @ 12.34 m) 6,745 lb @ 47'-10" (3060 kg @ 14.59 m)
Rotation Torque	50,600 ft-lb (7 t-m)	50,600 ft-lb (7 t-m)	50,600 ft-lb (7 t-m)	50,600 ft-lb (7 t-m)
Rotation Angle	0 - 360 °	0 - 360 °	0 - 360 °	0 - 360 °
Max. heel at max. load moment	5°	5°	5°	5°

MEASUREMENTS - MODELS K2, K3, K4, K5

Height above chassis when folded	7'-11" (2425 mm)
Width when folded	8'-2" (2500 mm)
Length without extra valves	4'-4" (1315 mm)
Outrigger spread,standard	27'-8" (8420 mm)
Outrigger spread, asymetrical	22'-1" (6725 mm)
Outrigger spread, long	27'-7" (8420 mm)

WORKING SPEED - MODELS K2, K3, K4, K5

Rotation speed	12 deg/sec

WEIGHTS

	K2	K3	K4	K5
Standard loader w/o outrigger legs	9,612 lb (4360 kg)	10,273 lb (4660 kg)	10,934 lb (4960 kg)	11,420 lb (5180 lb)
Outrigger legs, standard	1543 lb (700 kg)	1543 lb (700 kg)	1543 lb (700 kg)	1543 lb (700 kg)
Outrigger legs, asymetrical	1631 lb (740 kg)	1631 lb (740 kg)	1631 lb (740 kg)	1631 lb (740 kg)
Outrigger legs, long	2040 lb (925 kg)	2040 lb (925 kg)	2040 lb (925 kg)	2040 lb (925 kg)
Mounting bolts	165 lb (75 kg)	165 lb (75 kg)	165 lb (75 kg)	165 lb (75 kg)
Oil in cylinders	176 lb (80 kg)	194 lb (88 kg)	212 lb (96 kg)	229 lb (104 kg)

POWER CONSUMPTION / PUMP PERFORMANCE

Working Pressure	47,862 psi (330 kPa)
Pump performance max. - Power Consumption	1 x 21 gal - 60 hp (1 x 80 l - 45 kW) 1 x 32 gal - 99 hp (1 x 120 l - 74 kW) 2 x 17 gal - 91 hp (2 x 65 l - 68 kW) 2 x 39 gal - 154 hp (2 x 110 l - 115 kW)
Max. Oil Consumption	K2 - 21.7 gal (82 l) K3 - 23.8 gal (90 l) K4 - 25.8 gal (98 l) K5 - 27.5 gal (104 l)

Technical Data 52/380 K6 - K8

PERFORMANCE

	K6	K7	K8
Load Moment	353,694 ft-lb (48.9 tm)	349,354 ft-lb (48.3 tm)	344,291 ft-lb (47.6 tm)
Hydraulic Reach	51'-8" (15.75 m)	59'-10" (18.24 m)	67'-6" (20.58 m)
Hydraulic Telescopic Movement	36'-11" (11,250 mm)	44'-5" (13,550 mm)	52'-0" (15,850 mm)
Hydraulic Lifting Capacity	24,560 lb @ 14'-4" (11140 kg @ 4.38 m) 17,310 lb @ 19'-9" (7850 kg @ 6.03 m) 13,050 lb @ 25'-4" (5920 kg @ 7.73 m) 10,250 lb @ 31'-3" (4650 kg @ 9.53 m) 8,335860 lb @ 37'-6" (3780 kg @ 11.43 m) 6,945 lb @ 44'-3" (3150 kg @ 13.48 m) 5,950 lb @ 51'-3" (2700 kg @ 15.63 m)	23,260 lb @ 15'-0" (10550 kg @ 4.57 m) 16,400 lb @ 20'-5" (74400 kg @ 6.22 m) 12,325 lb @ 25'-0" (5590 kg @ 7.92 m) 9,635 lb @ 31'-11" (4370 kg @ 9.72 m) 7,760 lb @ 38'-1" (3520 kg @ 11.62 m) 6,395 lb @ 44'-10" (2900 kg @ 13.67 m) 5,425 lb @ 51'-11" (2460 kg @ 15.82 m) 4,695 lb @ 59'-5" (2130 kg @ 18.12 m)	22,750 lb @ 15'-2" (10320 kg @ 4.61 m) 15,920 lb @ 20'-6" (7220 kg @ 6.26 m) 11,860 lb @ 26'-1" (5380 kg @ 7.96 m) 9,170 lb @ 32'-0" (4160 kg @ 9.76 m) 7,320 lb @ 38'-3" (3320 kg @ 11.66 m) 5,950 lb @ 45'-0" (2700 kg @ 13.71 m) 4,980 lb @ 52'-0" (2260 kg @ 15.86 m) 4,255 lb @ 59'-7" (1930 kg @ 18.16 m) 3,750 lb @ 67'-2" (1700 kg @ 20.46 m)
Rotation Torque	50,600 ft-lb (7 t-m)	50,600 ft-lb (7 t-m)	50,600 ft-lb (7 t-m)
Rotation Angle	0 - 360 °	0 - 360 °	0 - 360 °
Max. heel at max. load moment	5°	5°	5°

MEASUREMENTS - MODELS K6, K7, K8

Height above chassis when folded	7'-11" (2425 mm)
Width when folded	8'-2" (2500 mm)
Length without extra valves	4'-9" (1460 mm)
Outrigger spread, standard	20'-9" (6325 mm)
Outrigger spread, asymetrical	22'-1" (6725 mm)
Outrigger spread, long	27'-7" (8420 mm)

WORKING SPEED - MODELS K6, K7, K8

Rotation speed	12 deg/sec

WEIGHTS

	K6	K7	K8
Standard loader w/o outrigger legs	12,015 lb (5450 kg)	12,456 lb (5650 kg)	12,897 lb (5850 kg)
Outrigger legs, standard	1543 lb (700 kg)	1543 lb (700 kg)	1543 lb (700 kg)
Outrigger legs, asymetrical	1631 lb (740 kg)	1631 lb (740 kg)	1631 lb (740 kg)
Outrigger legs, long	2040 lb (925 kg)	2040 lb (925 kg)	2040 lb (925 kg)
Mounting bolts	165 lb (75 kg)	165 lb (75 kg)	165 lb (75 kg)
Oil in cylinders	240 lb (109 kg)	256 lb (116 kg)	273 lb (124 kg)

POWER CONSUMPTION / PUMP PERFORMANCE

Working Pressure	47,862 psi (330 kPa)
Pump performance max. - Power Consumption	1 x 21 gal - 60 hp (1 x 80 l - 45 kW) 1 x 32 gal - 99 hp (1 x 120 l - 74 kW) 2 x 17 gal - 91 hp (2 x 65 l - 68 kW) 2 x 39 gal - 154 hp (2 x 110 l - 115 kW)
Max. Oil Consumption	K6 - 28.0 gal (106 l) K7 - 29.3 gal (111 l) K8 - 30.4 gal (115 l)

9. Working Pressure & Pump Performance

The working pressure must only be set with a calibrated pressure gauge by an authorized IMT service point.

The working pressure is checked during the annual service overhaul and in case of any major repairs.

The procedure for checking and setting of load-holding valves is described in the Service Information binder. All adjustable valves will be re-sealed after pressure setting adjustment.

CAUTION

Please note that any warranty obligations on the part of IMT will be invalidated if the conditions stated in this manual are not complied with.

10. Description of the Hydraulic System

The valve block of the loader is of the "stack" type, i.e., it 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 in order to limit the pressure in the individual circuits. Normally the port relief valves will be pre-set and unadjustable.

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

1 Protection of cylinders against excessive pressure

2 Reducing the lowering speed of the boom

3 Maintaining the boom in position during operations where a fixed boom position is required.

4 Locking the boom and maintaining the load in position in case of hose or pipe rupture.

The outrigger cylinders are equipped with a piloted check valve, which locks the cylinder in case of damage to the hydraulic system.

CAUTION

The main relief valve, the load holding valves, the dump valve and the external relief valve are sealed. If these seals are broken or removed, the IMT warranty will automatically be invalidated. Therefore, it is in your own interest to have the seals checked from time to time and to make sure that they are replaced by an authorized IMT service point, 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 authorized IMT service point.

10.1 Hydraulic System - Pump & Tank

1 Two high-pressure filters with indicator fitted on the base, 25 micron absolute filter, Q-max. 29 gpm (110 l/min.), P-max. 4641 psi (320 bar). Built-in by-pass valve opens at 43.5 psi (3 bar). The crane fitter connects the hydraulic pump to the high-pressure filters.

2 Hydraulic swivel coupling placed between the base and the mast includes six inlets and outlets.

3 Two PVG 32 control groups with 4 and 3 sections respectively. In case of a single circuit system, series connection. In case of a dual circuit system, parallel connection of the two control valve groups.

4 An external dump valve with 9 in-/outlets. The dump valve offers the possibility of dumping the LS-pressure from the PVG 32 – or the outrigger valve.

5 Oil cooler type HP 30 with a cooling effect of approximately 0.53 KW/°C at an oil flow of 40 gpm (150 l/min.). The crane fitter connects the tank to the oil cooler.

6 A ¼ ” shuttle valve controls the LS oil flow between the control valves (the PVG 32 valve groups and the outrigger valve) and the pump.

7 The tank connections from the control valves are connected in a cooler valve. The oil flows from the cooler valve to the oil cooler. To protect the oil cooler against overloading (too high hydraulic pressure), a relief valve has been built into the cooler valve. The pressure drop in both the relief valve and the oil cooler are approximately 14.5 psi (1 bar) at an oil flow of 33 gpm (125 l/min.) I.e. if pressure peaks occur in the return system exceeding 14.5 psi (1 bar), some of the return oil will flow through the relief valve directly to tank. The crane fitter connects the tank to the cooler valve.

10.2 Hydraulic System, Rotation

1 The planetary gear has a type OMR 200 fitted hydraulic motor.

2 A double load-holding valve has been flanged directly onto the hydraulic motor. The load-holding valve has a built-in shuttle valve for opening the brake of the planetary gear.

10.3 Hydraulic System, Inner & Outer Boom

1 Both cylinders have a double piston rod seal to ensure they are oil proof.

2 The same type of load-holding/regeneration valves have been used on both the inner and outer cylinders, and the valves are flanged directly onto the cylinders.

3 A combined load-holding and regeneration valve has been mounted on the piston rod side of the cylinder. The regeneration valve is controlled by the RCL controller (load on loader). When th load moment is less than 50%, the regeneration valve can be activated. This increases the lifting speed. The function is activated from the radio remote control box.

4 A load-holding valve has been mounted on the piston side of the cylinder. The opening pressure is case of overload is adjusted on the cartridge. The cartridge pre-controls the load-holding valve itself. The principle of a pre-controlled load-holding valve ensures a precise pressure setting (opening pressure) and soft braking when the lowering movement is stopped.

10.4 Hydraulic System, Extension

1 The extension system can have up to 8 cylinders, which are hydraulically series connected. A double load-holding valve is built in between the cylinders and the control valve.

2 The hydraulic oil flows from one cylinder to the other through the piston rod as well as the hydraulic pipes.

3 The load-holding valve has a built-in regeneration system, which increases the speed during the “extension – out” movement. During the “extension – in” movement, the regeneration is not activated.

4 The regeneration function can electrically be connected and disconnected from the remote control box.

10.5 Hydraulic System, Outriggers

1 The outrigger cylinders, the cylinders for hydraulic extension of the outrigger beam as well as the separate traverse, are controlled by an electric ON-OFF controlled outrigger valve.

2 The outrigger valve is operated by means of the radio remote control box. The radio remote control activates a combination of solenoid valves, which open the oil flow for the different outrigger cylinders. The individual outrigger functions can be operated at two speeds.

3 In case of system errors or a failure in the power supply, emergency operation of the outrigger valve is possible when manually activating the individual solenoid valves.

4 A piloted check-valve has been flanged directly onto the outrigger cylinders. The check-valve has a built-in regeneration system, which increases the speed during the “outrigger – out” movement. During the “outrigger – in” movement, the regeneration is not activated.

10.6 Hydraulic System, Fly-Jib

Jib Cylinder

1 The Fly-Jib has two jib cylinders, one on each side.

2 The same type of load-holding valve is flanged onto each cylinder on the piston side and rod side. This ensures that the load is maintained in case of positive and negative load (i.e. bridge inspection).

Extension

1 The extension system can have up to 6 cylinders, which are hydraulically series connected. A double load-holding valve is built in between the cylinders and the control valve.

2 The hydraulic oil flows from one cylinder to the other through the piston rod as well as the hydraulic pipes.

3 The load-holding valve has a built-in regeneration system, which increases the speed during the “extension – out” movement. During the “extension – in” movement, the regeneration is not activated.

Loader

1 The hydraulic connections for the Fly-Jib (jib cylinders and extension cylinders) are led by a double hose reel, which is placed on the main boom of the loader. Four quick-release couplings at the hook suspension of the loader finish the connection.

2 The hydraulic connections for a Fly-Jib extra function (e.g. grab) are led by a single hose reel.

3 In case of a hydraulic extra function, an electric change-over valve is mounted between the quick-release couplings on the jib extension and the hose reel on the Fly-Jib. The change-over valve controls the oil flow for either the Fly-Jib - extension function or the extra valve function. Activation of the change-over valve from the radio remote control box.

10.7 Hydraulic System, Winch

1 A load-holding valve has been flanged directly onto the winch motor. The winch ”ease”-movement takes place by the load-holding valve controlling the oil flow. The built-in hydraulic brake in the winch functions only as a holding brake.

2 The winch motor works without leak oil drain. The motor has a reinforced axle seal, and a built-in shuttle valve leads the leak oil to the return side in case of both the hoist movement and the ease movement.

3 An electric change-over valve is fitted between the control valve and the winch motor. The change-over valve controls the oil flow for either the winch or the cylinder for the swing-up stowing bracket. Activation of the change-over valve from the radio remote control box.

4 A double load-holding valve is fitted between the electric change-over valve and the cylinder for the swing-up stowing bracket, which ensures that the winch is maintained either in working position or stowing position.

Electric change-over valve

1 6-way, 2-position change-over valve

2 1/2” ports, P-max.: 300 bar (250 bar during activation).

3 The valve has an external drain, i.e. leaking oil cannot flow to the swing-up cylinder during winch operation.

10.8 Hose Reels & Fittings

Double Hose Reel

Hose Reel	Ø700 mm. Max. pressure 5076 psi (350 bar)
Hose (2 Units)	Fiber-reinforced, 1/2" dia. x 60'-8" (18.5 m) long. Max. pressure 5440 psi (375 bar)

Single Hose Reel, Fly-Jib

Hose Reel	Ø470 mm. Max. pressure 5076 psi (350 bar)
Hose	Fiber-reinforced, 5/16" dia. x 59'-8" (18.2 m) long. Max. pressure 4714 psi (325 bar)

Quick-Release Couplings

1 ½” BSP quick-release coupling. Max. pressure 5440 psi (375 bar).

2 Double valve system in the female part offers the possibility of the quick-release couplings being assembled and disassembled during hydraulic pressure (also exceeding system pressure in case of e.g. heating from the sun etc.).

3 Leakage proof when assembling and disassembling.

Electric Change-Over Valve

1 6-way, 2-position change-over valve

2 3/8” ports. Max. pressure 4351 psi (300 bar) ((3626 psi (250 bar) during activation.))

3 The valve has an internal drain, i.e. a bit of leak oil can flow to the other function, which is not being used.

10.9 Hydraulic Valve Functions

A new valve system has been fitted on the inner and outer boom cylinders which controls the load-holding function, the regeneration system, the soft stop, as well as the precise relief function in case of overload.

Valve Installation

The load-holding valve on the piston side has three built-in single valves:

- Load-holding valve cartridge
- Pilot valve
- Shut-off valve

The load-holding valve on the piston rod side has the following built-in single valves:

- Load-holding valve cartridge
- Solenoid valve for regeneration

Lifting Function

The oil flows from the B-port of the control valve to the V2-port of the load-holding valve and through the check valve out of the C2-port to the piston side of the cylinder. The oil is displaced from the piston rod side to the C1-port.

If the load moment of the loader is below 50%, it is possible to choose the regeneration function, and the solenoid valve is closed. The oil thus flows through the load-holding valve and is regenerated to the piston side through the V2-port.

If the load moment of the loader exceeds 50%, the regeneration function should not be chosen, as the lifting capacity is only approx. 50% when using the regeneration function. The solenoid valve is thus open and the oil flows through the V1-port back to the control valve (tank).

Lowering Function

The oil flows from the A-port of the control valve and through the V1-ports of both load-holding valves and out of the C1-port to the piston rod side of the cylinder.

A pilot pressure from the V1-connection influences the pilot piston in the load-holding valve cartridge, and opens it. The oil can now be displaced from the piston side of the cylinder to the C2-port and through the load-holding valve cartridge and out of the V2-port back to the control valve (tank).

If, during the lowering movement, the loader tends to oscillate (the boom system moves abruptly), these oscillations become neutralized by the shut-off valve. In case of pressure oscillations, this valve opens and closes, thus damping the pilot signal over the adjustable restrictor valve, sitting parallel to the shut-off valve.

Overload Function

When the boom system is moved down at a big load moment, and the movement is stopped, the valve system must ensure a soft braking.

In case of overload, first the pilot valve opens, and the oil pressure gives a pilot signal to the load-holding valve cartridge. This valve opens and relieves the cylinder by conducting the oil flow to the V2- port and back to the control valve (tank).

The pilot valve ensures a fast and precise opening of the load-holding valve cartridge, which offers a good and soft unloading of the cylinder.

10.10 Installation, Pump - Tank

Use the dimensions indicated for pipes and hoses that are to be used when connecting the loader hydraulics to the pump and the hydraulic tank.

When choosing pipes and hoses, the maximum system pressure has to be taken into account:

- Pump line - Min. working pressure 5076 psi (350 bar)
- LS-line - Min. working pressure 5076 psi (350 bar)
- Return line - Min. working pressure 725 psi (50 bar)

Connect the pump pipe to the high pressure filters: Connection ¾ “ G.

NOTE:

Connect two return pipes to the hydraulic tank: One from the oil cooler (called ”cooler” in the table) and one from the cooler valve (called ”valve” in the table).

Connection to the oil cooler: 1” G

Connection to the cooler valve: 1¾ ” G

NOTE

The dimensions stated are minimum dimensions .

NOTE

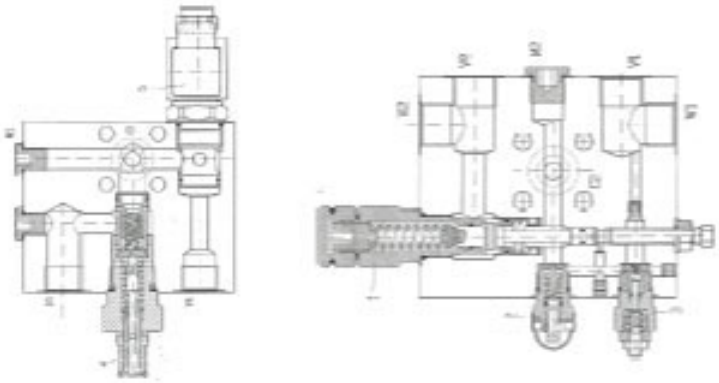
IMT standard crane configuration is recommended to be operated by the 2-circuit, fixed pump system.

Pump type		2-circuit, fixed pump
Dimensions, pump line	Pipe (mm)	2 x ø20 x 2.5
	Hose ("G)	2 x 3/4"
Dimensions, return line	Pipe (mm)	From cooler: ø28 x 2 From valve: ø35 x 2.5
	Hose ("G)	From cooler: 1" From valve: 1-1/4"

10.11 Hydraulic Valve System Adjustment

The load-holding valves on the boom and jib cylinders have the following pressure setting:

Valve Type	Pressure Setting	Adjustment
Load Holding Valve Cartridge (1)	5656 psi (390 bar)	1740 psi (120 bar/turn)
Pilot Valve (2)	4931 psi (340 bar)	3118 psi (215 bar/turn)
Shut-Off Valve (3)	580 psi (40 bar)	464 psi (32 bar/turn)
Load-Holding Valve Cartridge (4)	1813 psi (125 bar)	508 psi (35 bar/turn)



Setting procedure

If the opening pressure of the load-holding valve is to be adjusted, a certain procedure must be followed because of the combination of the load-holding valve cartridge and the pilot valve.

- Connect a pressure gauge to the test nipple on the load-holding valve sitting on the piston side of the cylinder.
- Increase the pressure of the pilot valve (pos. 2) by tightening (clockwise) the adjusting screw ½ turn (corresponds to approx. 450 bar).
- Move a load weighing approx. 30% more than the loader's lifting capacity at max. reach into the basic position of the loader.
- Extend the load by means of the extensions until the pressure gauge indicates 390 bar.
- Slowly loosen the load-holding valve cartridge (pos. 1) (counter-clockwise) right until the load starts to move.
- Retract the load by means of the extensions until the pressure gauge indicates 340 bar.
- Slowly loosen the pilot valve (pos. 2) right until the load starts to move.

Then the adjustment of the valves has been finished and have to be sealed.

Instability

If an unstable lowering movement occurs (the jib extensions move abruptly), it is possible to try to adjust the shut-off valve (pos. 3). If the oscillation occurs at a low load moment, try to reduce the pressure setting by loosening the adjusting screw ¼ turns at a time. In case of a high load moment – reverse the procedure.

10.12 Pressure Settings

Valve block, circuit 1			Unit		
Main-relief valve			Mpa	35.0 (5076 psi)	
Functions		Port		Port-relief valves	LS-pressure adjustment
Slewing	CW CCW	A-port B-port	- -	P P	15.0 LS 15.0 LS
Winch	Lift Lower	A-port B-port	- -	P P	21.0 LS 21.0 LS
Boom cylinder	Up Down	A-port B-port	- -	35.0 P	33.0 12.5
Valve block, circuit 2			Unit		
Main-relief valve			MPa	35.0 (5076 psi)	
Function		Port		Port-relief valves	LS-pressure adjustement
Jib cylinder	Up Down	A-port B-port	- -	320 P	30.0 LS 20.0 LS
Rotator*	CW CCW	A-port B-port	- -	30.0** 28.0**	5.0 – 30.0 LS* 5.0 – 30.0 LS*
Grab*	Open Close	A-port B-port	- -	30.0** 30.0**	5.0 – 30.0 LS* 5.0 – 30.0 LS*
Separate outrigger valve					
Main-relief valve (all functions)			MPa	21.0 (3046 psi)	

*On loaders without Fly-Jib, it is possible to adjust the LS-pressure individually.
*On loaders with Fly-Jib, it is possible to adjust the LS-pressure according to the table.
**On loaders without Fly-Jib, it is possible to change the port-relief valves individually.
**On loaders with Fly-Jib, the port-relief valves are fitted according to the table.

10.13 Opening Pressure on Load-Holding Valves

Component/function		
Planetary Gear, V1	Slewing, CW	2320 psi (16.0 Mpa)
Planetary Gear, V2	Slewing, CCW	2320 psi (16.0 Mpa)
Boom cylinder C2-V2	Boom, up	5076 psi (35.0 Mpa)
Boom cylinder C1-V2	Boom, down	1813 psi (12.5 Mpa)
Jib cylinder C2-V2	Jib, up	4931 psi (34.0 Mpa)
Jib cylinder C1-V2	Jib, down	3046 psi (21.0 Mpa)
Extension cylinder C1-C2	Extension, retract	5511 psi (38.0 Mpa)
Extension cylinder C2-V2	Extension, extend	3771psi (26.0 Mpa)
Extension cylinder C2-V1*	Extension, extend*	3481 psi (24.0 Mpa)
* Max. pressure at “Extension, extend” and regeneration OFF		

Pressure Setting for Load Moment Limitation (LMB)

LMB - Loader	4587 psi (31.5 Mpa)

Max. Pump Performance

1 x fixed	2 x fixed	1 x variable	2 x variable
21.1 gal (80 l)	2 x 17.2 gal (65 l)	31.7 gal (120 l)	2 x 29 gal (110 l)

11. Load Moment Limitation

The loader is equipped with a load moment limitation system (LMB). This system ensures that the permissible load moment is never exceeded, irrespective of the operator's doings.

However, it is important to keep in mind that the LMB-system does not necessarily ensure sufficient vehicle stability. Before starting to work with the loader, the operator must always make sure that the vehicle is stable in the entire rotation area of the loader.

However, if the loader is equipped with an EVS-system (Electronic Vehicle Stability), the stability of the vehicle is ensured in the entire working area, because the system is constantly checking the vehicle, and immediately stopping the load moment increasing movement in case of instability, irrespective of the operator's doings.

The LMB-system is described in the **Instruction Manual - RCL Safety System**. The operator must be familiar with this manual.

12. Heavy Duty Lifting - HDL

If the loader is equipped with a Heavy Duty Lifting (HDL) system, an increased lifting capacity is obtained, although at reduced speed.

When the loader reaches its normal lifting capacity limit, the HDL-system will automatically couple in, irrespective of the operator's doings, and the oil flow to the control valve will be reduced to approx. 20% of the normal oil flow. At the same time the loader lifting capacity is increased by approx. 10% in the entire working area of the loader.

When the HDL-system couples in, the operator will be able to continue extending the load without interruption, although at reduced speed.

If the load moment is reduced to the permitted load limits again, the HDL-system will increase the oil flow to normal and the working speed will increase again.

However, the automatic disconnection implies that all control levers have been into neutral position *at the same time* as the load moment has been reduced to the permitted load limit.

See the section titled "Heavy Duty Lifting, HDL" in the RCL Safety System Instruction Manual.

13. Hoses and Hydraulic Pipes

The hoses must comply with the DIN 20 022 2SN standards.

The pipes are manufactured in St.35.4C-NBK.

14. Bleeding of Air

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

1 Raise and lower each outrigger leg twice.

2 Extend and retract the inner boom cylinder twice.

3 Extend and retract the outer boom cylinder twice with the inner boom pointing downwards and twice with the inner boom pointing upwards.

4 Extend and retract the extension cylinder twice with the outer boom cylinder pointing almost vertically upwards and twice with the outer boom cylinder pointing almost vertically downwards.

15. Repair

If you discover defects, damage or leaks they should be repaired as soon as possible. Always take your repairs to an authorized IMT service point. Repairs to the hydraulic system must only be made by an authorized service point.

When you order spare parts for your loader, please state:

- Loader type
- Loader serial number

This information can be found in this instruction manual or stamped into the metal plate on the back side of the loader mast.

16. Troubleshooting

16a. Reaction Table for Outrigger Valve

Function	Lever no.	Speed	Direction	Output	Cable/ valve no.	Output	Cable/ valve no.	Output	Cable/ valve no.
Stabilizer beam, left: Extend/ Retract	1	Low	extend	K320	12	K322	9A	K315	A1
	-	-	retract	K320	12	K321	9B	K315	A1
	-	High	extend	K319	13	K322	9A	K315	A1
	-	-	retract	K319	13	K321	9B	K315	A1
Separate traverse, left: Extend/ Retract	2	Low	extend	K320	12	K322	9A	K318	A5
	-	-	retract	K320	12	K321	9B	K318	A5
	-	High	extend	K319	13	K322	9A	K318	A5
	-	-	retract	K319	13	K321	9B	K318	A5
Stabilizer beam, right Extend/ Retract	3	Low	extend	K320	12	K322	9A	K317	A3
	-	-	retract	K320	12	K321	9B	K317	A3
	-	High	extend	K319	13	K322	9A	K317	A3
	-	-	retract	K319	13	K321	9B	K317	A3
Separate traverse, right Extend/ Retract	4	Low	extend	K320	12	K322	9A	K316	A7
	-	-	retract	K320	12	K321	9B	K316	A7
	-	High	extend	K319	13	K322	9A	K316	A7
	-	-	retract	K319	13	K321	9B	K316	A7
Stabilizer beam, left: Leg up/down	5	Low	down	K320	12	K322	9A	K311	A2
	-	-	up	K320	12	K321	9B	K311	A2
	-	High	down	K319	13	K322	9A	K311	A2
	-	-	up	K319	13	K321	9B	K311	A2
Separate traverse, left: Leg up/down	6	Low	down	K320	12	K322	9A	K312	A6
	-	-	up	K320	12	K321	9B	K312	A6
	-	High	down	K319	13	K322	9A	K312	A6
	-	-	up	K319	13	K321	9B	K312	A6
Stabilizer beam, right Leg up/down	7	Low	down	K320	12	K322	9A	K313	A4
	-	-	up	K320	12	K321	9B	K313	A4
	-	High	down	K319	13	K322	9A	K313	A4
	-	-	up	K319	13	K321	9B	K313	A4
Separate traverse, right Leg up/down	8	Low	down	K320	12	K322	9A	K314	A8
	-	-	up	K320	12	K321	9B	K314	A8
	-	High	down	K319	13	K322	9A	K314	A8
	-	-	up	K319	13	K321	9B	K314	A8

16b. Error Codes on Output in CIO 5070

Output	Error code	Output	Error code
K311	14070	K317	14076
K312	14071	K318	14077
K313	14072	K319	14080
K314	14073	K320	14081
K315	14074	K321	14082
K316	14075	K322	14083