



# JCB LOADALL 550-80 vs MERLO P55.9

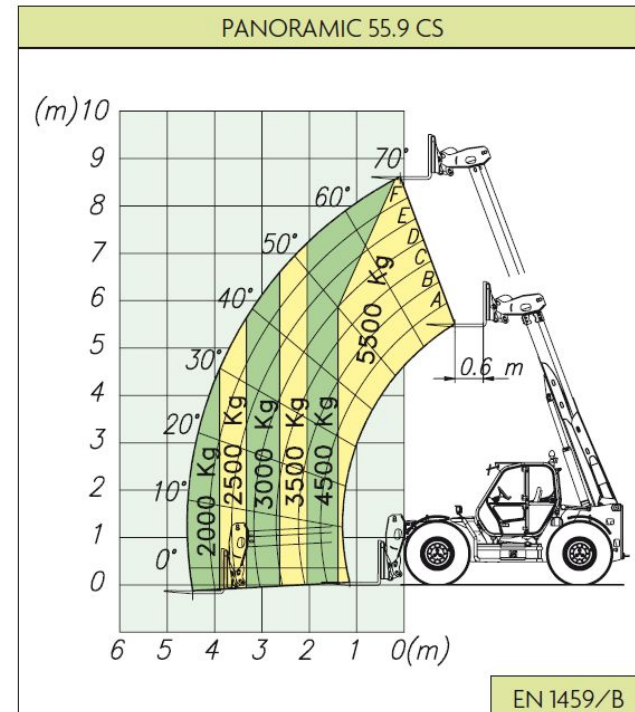
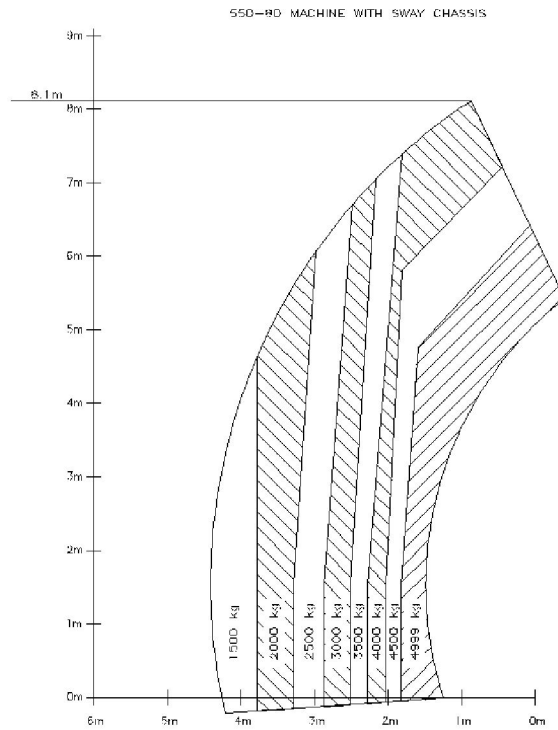
## SUPERIOR BY DESIGN



**CONFIDENTIAL TO JCB PERSONNEL**



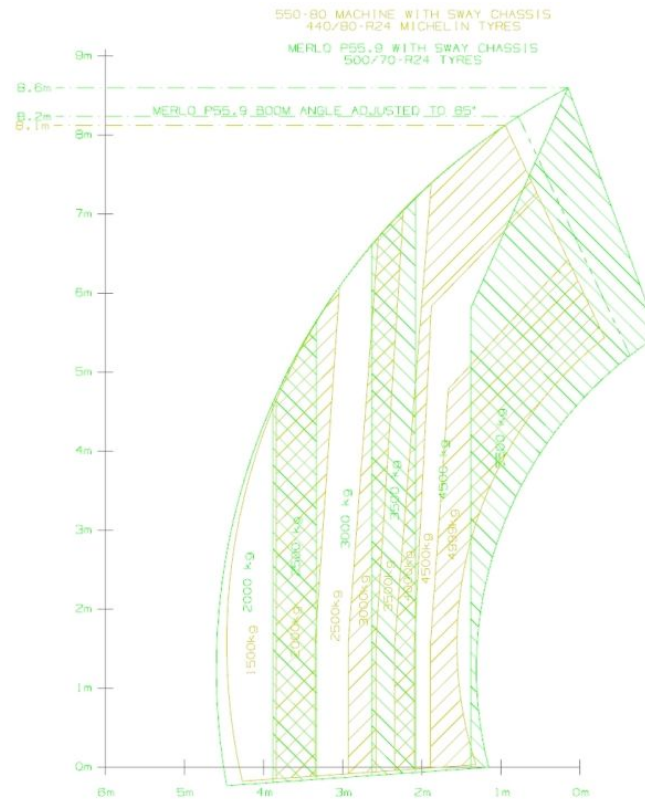
## Base Specification



- Merlo P55.9 gives very little forward extension with maximum payload, predominantly above the chassis making loading of hoppers/lorries difficult
- 550-80 offers 145HP for extra power versus the Merlo 140HP



## Lift chart comparison



- Reinforcement of the P55.9 maximum loading being above the chassis
- Increased maximum boom angle of P55.9 can increase wear on major pivot points



### Chassis

- Built to last
- Strength and weight
- Attention to detail

#### **Built to last**

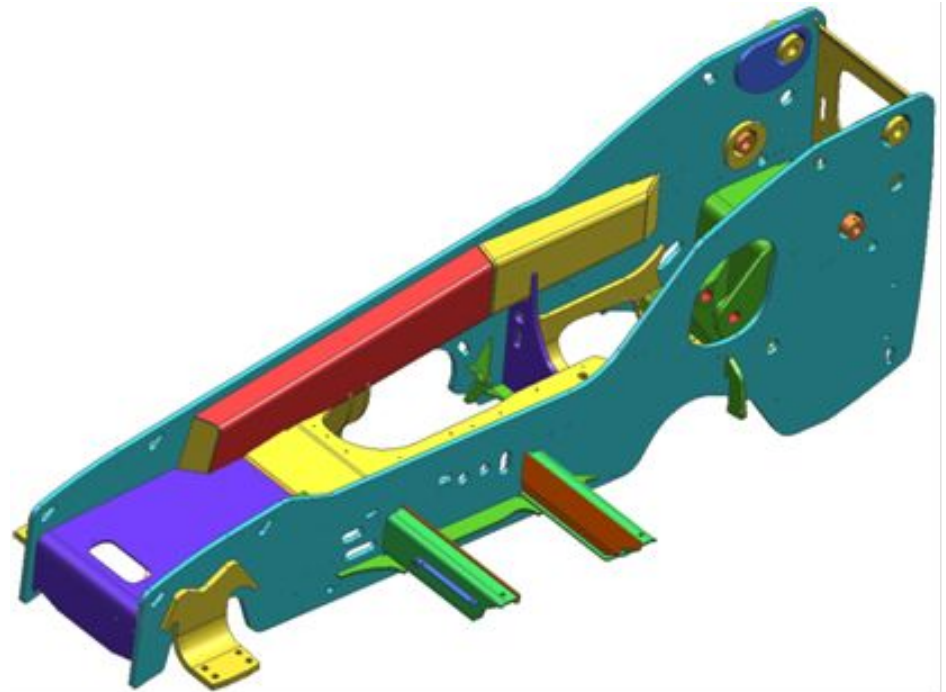
JCB Loadall's can dig, not just lift and place. Cat tail welds eliminate stress concentration at joint lines

#### **Strength and weight**

25mm thick steel chassis plates provide excellent strength and torsional stiffness. Also acts as integral counterweight

#### **Attention to detail**

Finite element analysis and strain gauge testing prove JCB's 10 year design life





Superior by Design

## Main Components



- JCB Dieselmix turbocharged cooled engine combined with JCB gearbox, hydraulic rams, cab, chassis and boom.
- In house manufacture facilitates high quality control and quick response to customer needs



- Less control of quality and supply through various externally sourced componentry
- 103kW (138hp) Deutz engine provides less power than the JCB 145hp engine
- Sauer Danfoss hydrostatic transmission



## Chassis



- 25mm thick side plates provide excellent strength and weight to the chassis structure
- Long, thick deck plates provides superb structural rigidity and durability
- Integral hydraulic tank adds weight to the structure to reduce counterweight needs



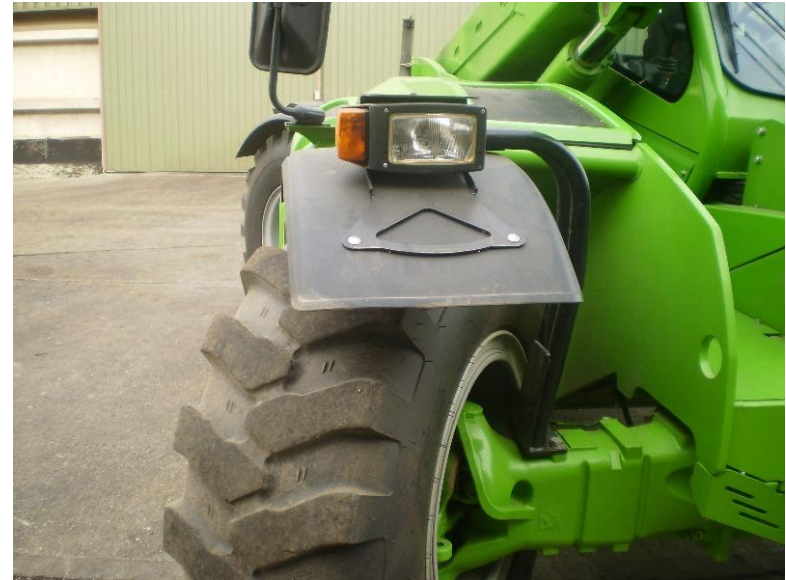
- Thin 20mm thick side plates reduce structural strength
- 2 piece chassis with rear joint reduces structural rigidity
- Enclosed compartments easily collect debris and dirt



## Chassis



- Fixed or sway variants available
- Heavy duty axle feet or sway casting comprehensively absorb stress caused through heavy duty operation
- Cat tail welds disperse the stress into the structure



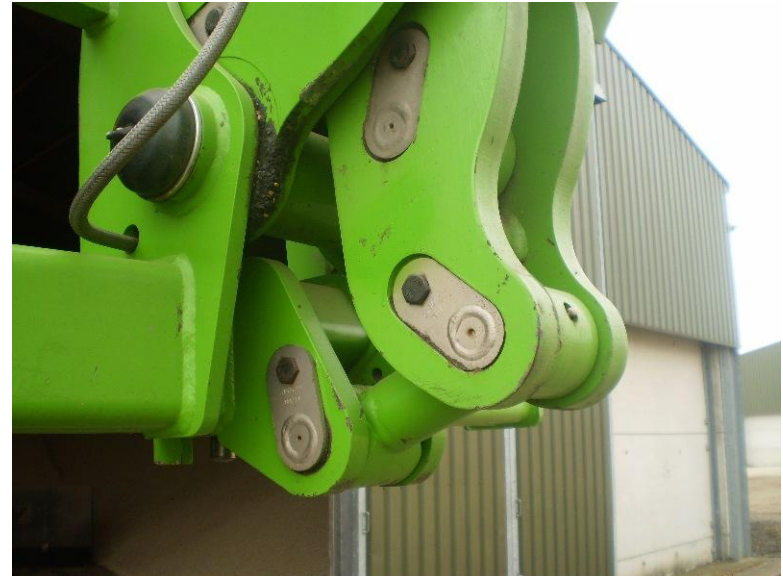
- Sway chassis as standard
- Little use of heavy duty componentry
- Digging forces absorbed through axles which causes high stresses and potential early life failure



## Boom



- JCB 550-80 utilises a Z bar linkage to maximise the tear out force of 6650 dAN for ultimate re-handling
- Splayed boom nose increases structural strength
- Thick boom plate for ultimate durability



- Merlo uses under-slung tilt ram and pivot linkage
- Reduced productivity particularly when re-handling
- Minimal boom nose reduces structural strength and integrity





### Boom

	Merlo P55.9	JCB 550-80
Outer boom height	365mm	450mm
Outer boom width	310mm	353mm
Outer boom plate thickness	10mm	10mm
Inner boom height	330mm	373mm
Inner boom width	270mm	300mm
Inner boom plate thickness	8mm	12mm
Boom overlap, outer to inner	1200mm	1222mm
Total amount of boom extension	3350mm	2978mm

- 550-80 has increased boom dimensions to maximise structural integrity and rigidity
- Boom is purpose built for heavy duty applications to reduce wear and cost of ownership
- Increased boom overlaps give maximum structural strength and reduce boom deflection throughout operations and particularly at maximum extension
- Increased inner boom plate thickness



## Boom



- Dry waxoyl coating is used for excellent wear protection, reduced dirt adhesion and reduced servicing
- U shape boom with one closing plate maximises strength and increase structural rigidity
- Keyhole type castings absorb and disperse energy to minimise wear and increase duty life



- 2 off welded 'C' shape sections absorb the stresses into the joint and can cause early life failure
- Boom nose welded onto the end of these box sections is where lifting forces are dispersed, therefore putting continual stresses onto the joint



Boom



- One centrally mounted lift ram provides even dispersion of lifting forces throughout the boom structure
- Provides reduced maintenance and cost of ownership



- Merlo also use one centrally mounted lift ram
- 1 offset displacement ram
- Structural unevenness can put twisting forces into the boom and cause wear



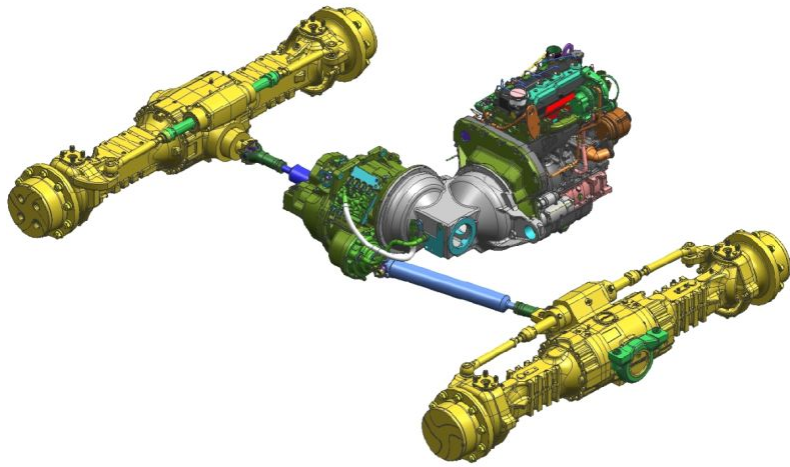
Cycle times

	550-80 by calculation	Merlo P55.9 as measured (from JCB Spa)
Lift	7.4	8.3
Lower	5.9	6.9
Extend	8.3	8.6
Retract	5.9	6.8
Tilt	3.0	5.7
Dump	2.8	4.2
Total combined cycle	33.3	40.5

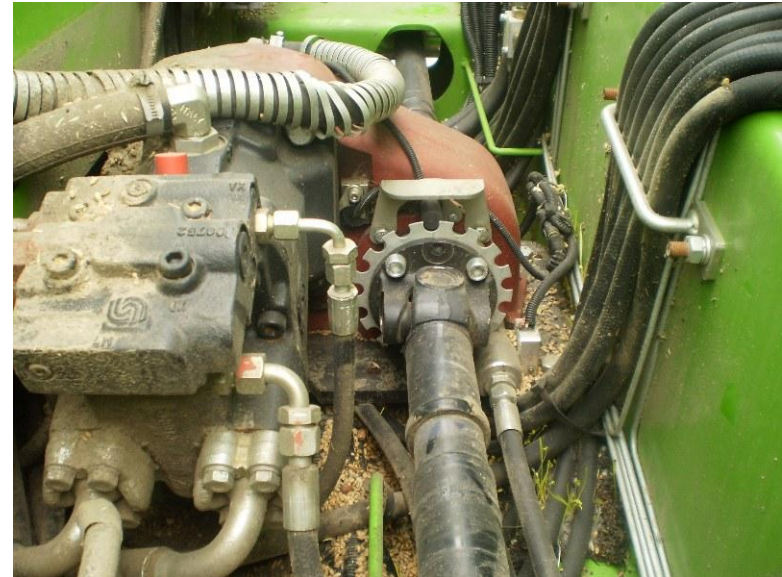
- JCB 550-80 has a superior total combined cycle time as shown
- Re-generation hydraulics provide significantly quicker lower and retract cycle times for ultimate performance when re-handling
- Reduced cycle times facilitate maximum productivity and reduce cost of ownership
- Maximum return on investment



## Transmission



- JCB transmission is integrated to ensure perfect harmony of operation
- 4 speed Powershift gearbox provides fast and effortless changes of gear and direction
- Heavy duty axles for maximum work life
- Variable speed cooling fan maximises cooling whilst reducing power consumption



- Merlo uses Deutz engine and Sauer Danfoss drive motor, reducing integration of major components
- Continuous speed cooling fan as opposed to variable speed, can increase power/fuel consumption and therefore operating costs



## Cab Layout



- Automotive styling with large right hand display facilitates clear and concise operator feedback
- Logically grouped switches which fall easily to hand for ease of operation
- Pillar mounted LMI display for ease of use when operating at height



- Basic styling of cab layout with separate panels for displays as opposed to integrated units
- ADHOC positioning of switches increases complexity of operations and reduces productivity



## Cab Controls



- Electric servo control offers light and responsive control of the hydraulic services
- Ergonomically designed joystick requires minimal movement for operation to reduce operator fatigue
- Cab mounted or seat mounted options for maximum versatility

- ADHOC positioning of joystick and armrest facilitate an uncomfortable operator environment to increase fatigue
- Cab mounted option only reduces machine versatility
- 'Dead man switch' uncomfortable to use



### Cab Controls



- Combined directional control and 4 powershift gears on steering column lever makes direction and gear change effortless for maximum productivity and minimum fatigue
- Auto steer mode switch makes changing between the 3 steer modes quick and easy



- Forward/reverse switch difficult to access on the steering column, therefore increasing change times and reducing productivity
- Manual steer mode change as standard can reduce productivity when compared to auto steer mode





### Braking



- 550-80 is fitted with high back off brakes which facilitates less energy consumption
- Power brakes are used to reduce pedal effort and therefore operator fatigue
- 4 wheel braking for maximum safety
- Automatic transmission dump on brake pedal



- P55.9 utilises standard service disc brakes which required increased effort for operation therefore increasing operator fatigue
- Use of inching pedal increases the number of operations during use therefore reducing productivity



### Cab Design



- JCB cab has 8 fully adjustable vents, giving excellent all round ventilation
- An air conditioning option compliments this ventilation and being roof mounted makes servicing easier as well as increasing under bonnet airflow
- P55.9 has the heater unit mounted to the rear of the cab seat therefore reducing in cab storage space and impacting on operator comfort



### Cab Design



- 2 large and deep cab steps facilitate ease of access/egress
- Recessed diesel cap for maximum protection
- Non integrated plastic fuel tank reduces service time therefore reducing down time and cost of ownership



- Small gap between cab steps making access in and out more difficult
- Exposed diesel cap is susceptible to damage potentially increasing the cost of ownership
- Structurally integral tank increases down time if damaged



### Cab Design



- 2 large grab handles facilitate ease of access into the cab
- Lower glass door panel provides increased visibility to low areas around the machine
- Cleverly angled roof bars give maximum upward visibility of attachments



- 2 small grab handles, one not fixed makes ingress/egress timely
- Small lower door glass panel reduces operator visibility
- Thick roof bars reduce upward visibility to reduce productivity and increase fatigue



### Service access



- Wide opening, gas strut assisted bonnet gives extensive access for servicing
- All service points are located at the front of the bay for ease of location
- Easily removable pod and bonnet for all round access and minimum machine downtime



- Service access is dramatically restricted through low opening bonnet
- Fixed engine under cover makes all round access to the engine timely therefore increasing downtime and reducing productivity



Structure



- Minimal rear counter weight reduces stress throughout the chassis when laden
- Low boom pivot point in chassis increases machine stability whilst offering maximum visibility to the rear



- Use of 50mm thick chassis plate at rear reduces need for counter weight but also reduces structural rigidity through added joints and welds
- Can lead to early life failure and costly repairs



### Rear Lights



- JCB offers 2 positions for the rear lights for roading and non roading
- Increased protection to the components reduces the cost of ownership
- Increased visibility when stored upright
- Static rear and front lights mounted on fixed front and steering rear fender arms
- High exposure to damage increases ownership costs



### Why JCB Loadall

- JCB's proven 10 year design life
- In house manufacture of major components for quality assurance
- Minimal daily checks
- Structural integrity built in
- Simple control layout for safe and productive operation
- Increased visibility for high productivity and increased safety
- Patented 'Adaptive load control' generates progressive control complying to EN15000





# JCB LOADALL

## SUPERIOR BY DESIGN

