PYKE MANUFACTURING

20 TON RAIL CRANE

BERT PYKE LIMITED

185 Hillcroft Street
Oshawa, Ontario

PHONE: 416-579-4058

or

416-579-4059

FAX: 416-725-6887

IMPORTANT

WHEN ORDERING PARTS, PLEASE QUOTE SERIAL NUMBER OF MACHINE. THESE NUMBERS APPEAR ON YOUR PARTS BOOK AND YOUR MACHINE.

BERT PYKE LIMITED

20 TON RAIL CRANE

SERIAL NUMBER

NOTE:

SOME OPTIONS ARE SHOWN IN THIS MANUAL THAT MAY NOT BE INSTALLED ON YOUR PARTICULAR MACHINE.

OCTOBER 6, 1987

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SAFETY PRECAUTIONS

GENERAL SAFETY PRECAUTIONS:

1. Safety glasses, safety boots, hearing protection, and a hard hat should be worn at all times.

2. Compressed air is very dangerous! Do not come into direct contact with compressed air, it can cause serious injury or death.

3. Pressurized hydraulic fluid is very dangerous! Do not come into direct contact with pressurized hydraulic fluid, it can cause serious injury or death.

4. Do not smoke near fuel tank or fuel lines, or while re-fueling.

5. Do not smoke near batteries. Hydrogen gas generated by charging is explosive.

6. Keep steps and walkways and the top of the crane base clear and free of oil, ice, mud, ballast, and loose objects.

7. When mounting and dismounting the machine, use the hand-rails and steps provided. Do not climb onto the machine in any other manner.

8. It is recommended that a fire extinguisher be installed on the machine (Minimum 5 BC).

OPERATIONAL SAFETY PRECAUTIONS:

1. Only qualified people should operate the machine.

2. Operate the machine only when physically fit and not under the influence of alcohol or drugs.

3. Get to know the controls, gauges, warning lights and buzzers, and operational limits before operating the machine.

4. Before starting the machine, inspect it for obvious defects such as loose bolts, leaks, or unusual wear. Correct any problems uncovered before starting the machine.

5. Never operate the machine without noise suppression devices in place, eg. Muffler, cab insulation, engine cover doors. Constant exposure to escessive noise can damage hearing.

6. Always check for personnel standing around the machine, and do not operate until the area is clear.

7. Be sure that all locking pins and other safety devices are in place and in proper working order before travelling.

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SAFETY PRECAUTIONS

OPERATIONAL SAFETY PRECAUTIONS (CONT'D):

8. Never allow ice to build on brake shoes, this can greatly impair braking efficiency.

9. Always store the machine with all attachments in the "stored" position with safety pins, chains, etc. in place.

10. Always apply the parking brake before leaving the machine.

11. After parking the machine and shutting down the engine, set the battery disconnect switch to the "OFF" position.

12. Always be aware of the lifting capacity of the crane and never attempt to lift loads in excess of the Capacity Chart located in the cab.

13. Always ensure that the crane does not come into contact with overhead electrical wires.

14. Be especially careful when swinging loads, momentum can effectively cause the load to exceed the crane's capacity, also be aware of the reduced crane capacity when the load is at right angles to the track (over the side).

15. Never over-hoist the boom. It is possible to cause the boom to buckle and fall backwards over the crane body.

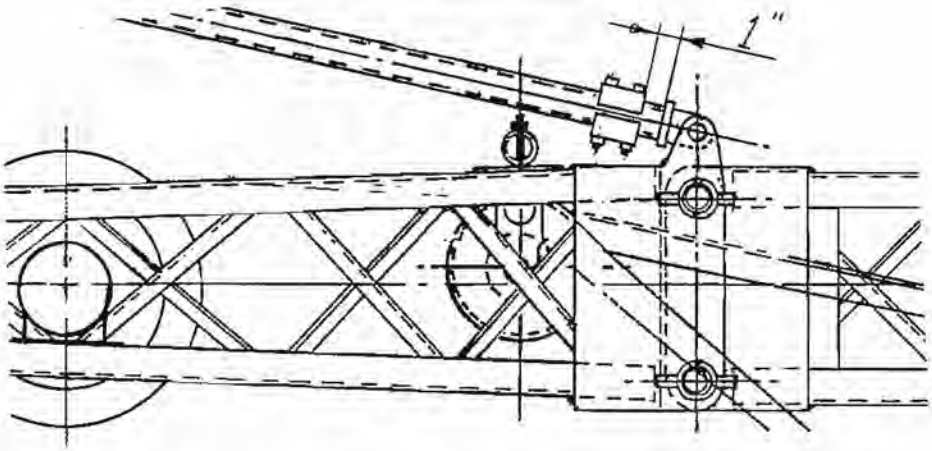
16. Always be aware of the effects of wind on the boom, crane body and the load to be lifted.

17. While the crane is supporting a load, there is stretch in the boom pendant cables and deflection of the boom structure. If the load is suddenly released, the boom will spring backwards when the pendant stretch and boom deflection comes out. If this happens while the boom is raised at high angle, the boom could topple back over the crane. For this reason use extreme caution while suddenly releasing a load.

18. If the crane is on super-elevated track, the lifting capacity over the low side is reduced.

19. The crane is equipped with a cut-out to prevent over-hoisting of the boom. This cut-out is controlled by a limit switch mounted on the left boom stabilizer. Because the boom can be placed in either the upper heel position or lower heel position there are two possible locations for the limit switch. For operation with the boom in the lower heel position, the limit switch must be placed in the rear position.

    For operation with the boom in the upper heel position, the limit switch must be placed in the forward position. Also, stop clamps must be placed on the inner tube of the stabilizer to act as a mechanical stop in case the cut-out system fails. These stop clamps are provided with the machine and they should be located according to the diagram shown



(The stop clamps are not necessary for operation with the boom in the lower heel position).

20. Never operate the crane with a damaged boom. Even slight damage can greatly reduce boom strength. The boom must be replaced or repaired before the crane is used.

SERVICING AND MAINTENANCE SAFETY PRECAUTIONS:

1. Never clean, adjust, repair, or lubricate the machine while it is running unless specifically required.

2. When servicing or repairing the machine, shut down the engine and disconnect the positive (+) cable from the battery.

3. Use caution when draining hot fluids from the machine. Splashing hot fluid can cause serious burns.

4. Never open radiator cap while engine coolant is hot.

THE ABOVE SAFETY PRECAUTIONS ARE A GUIDE TO SAFE PRACTICES, HOWEVER, NOTHING CAN TAKE THE PLACE OF COMMON SENSE AND AWARENESS OF THE POTENTIAL DANGERS AT ANY GIVEN MOMENT. TAKE THE TIME TO ASSESS EVERY SITUATION, AND ACTIVELY THINK ABOUT SAFE WORKING PRACTICES.

MACHINE DESCRIPTION

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MACHINE AND CONTROL DESCRIPTION

Cab Controls

Left hand joystick

Push Lever Forward	Boom winch down (3 times faster than raising speed).
Pull Lever back	Boom winch up
Push Lever left	Rotate upper deck to the left
Push lever right	Rotate upper deck to the right
Push electrical button forward	Blow air horn
Push electrical button backward	Permits the rotating upper deck to coast

Right hand joystick

Push Lever forward	Lowers main winch cable (3 times faster raising speed).
Pull Lever back	Raises main winch cable
Push Lever left	Lowers optional auxiliary winch cable
Push Lever right	Raises optional auxiliary winch cable
Push Electrical Button Forward	Blow Air Horn
Push Electrical Button Back	And then release button, Will energise magnet. Pressing and releasing of button again will de-energise magnet.

NOTE: With hydraulic joysticks any or all hydraulic functions may be carried out simultaneously

Emergency Free Fall

Located on left wall of cab are two adjacent push valves. If left in the out position the machine will operate normally. However, if the operator gets into a position that requires immediate release of the load, he should press the valves fully in. This will immediately drop the load on both the main and auxiliary winches.

NOTE: Please refer to Safety Precaution section concerning sudden dropping of the load.

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MACHINE AND CONTROL DESCRIPTION

Left Foot Pedal

Depressing this lever activates the machine brakes. Note - the track drive of this machine does not have hydro-dynamic braking. Therefore, this brake should always be used for stopping or slowing the machine.

Note - when pulling additional cars braking should be done by use of the line brake valve located on the cab wall to the left of the operator.

Right Foot Pedal

This pedal can be depressed backward or forward. The direction the pedal is depressed controls the direction the machine travels and the more the pedal is depressed the greater the speed of travel of machine.

Never reverse direction of travel of machine without first letting the machine come to a complete stop.

This machine is supplied with a two speed power shifted gear box. This means that the machine can be driven in "Low Range" or "High Range". The control of this gear box is an alectrical switch mounted on the control console. It is the "on-off-on" type.

If the switch is pushed down the gear box will be in Low Range. If the switch is pushed up the machine will be in High Range.

When starting from stationary position select "Low Range" depress foot pedal and continue increasing depression until the machine reaches the max. speed in "Low Range". To get into "High Range" ease foot about 50% on the pedal and select "High Range" on electrical switch. Then slowly increase pressure on pedal until machine reaches maximum or desired speed.

Changing from "High Range" to "Low Range" - do not change from High range to Low range until the machine is slowed to approximately 1/4 full speed (about 8 MPH). Damage could occur to the track drive system if the gear box is placed in Low range at speeds above 8 MPH.

Air compressor

The air compressor is driven by a hydraulic motor. To start this motor the engine must be running and then turn in or close the needle valve handle located on left hand cab wall. Opening this valve will stop the drive to the air compressor.

Generator - 230 DC -(OPTIONAL)

The generator is used for the optional magnet and is driven by a hydraulic motor.

1. With the engine running, turn in (close) the needle valve labelled Generator located on the left, front interior wall of the cab.

2. Set the manual field rheostat in the maximum resistance (minimum voltage) position (fully counter-clock wise). This rheostat is located in the upper cabinet (box) on the left, rear interior wall of the cab.

3. Set the main switch in the "on" position. This switch is the lower box located on the left, rear interior wall of the cab.

4. Set the latching relay toggle switch in the "on" position. This toggle switch is located in the side of the cabinet of the main switch. (the lower box).
   NOTE: The magnet may now be operated by the switch in the R.H. joystick as described in the "machine description" of this book.

5. After steps 1 - 4 have been completed and the magnet circuit has been energized adjust the generator voltage by means of the manual field rheostat to 230 volts.
   NOTE: As the magnet warms up, its resistance increases until it reaches normal operating temperature. The voltage of the generator should be re-adjusted to the proper value when the magnet reaches normal operating temperature.

   Keep the electrical load on the generator within its nameplate rating. Overloading the generator will cause the voltage to be low and overheat the generator. The generator is rated for "50% DUTY CYCLE - not over 30 minutes per full-load run". Fifty percent duty cycle means that if, for example, the lifting magnet is "turned on" for approximately five minutes, then it should be "turned off" for approximately five minutes (or as conditions require to prevent overheating of the generator).

MAINTENANCE

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FILTER MAINTENANCE

TRACK DRIVE SUCTION FILTERS (G058)

Replace filter elements G058E when vacuum gauge in cab reaches 10 in. of mercury.

HIGH PRESSURE FILTERS (7137 - R.H., 7137 L.H.)

Check indicator on filters daily. When indicator reads red, replace filter element 7137-1.

RETURN LINE FILTER (7131)

Check indicator on filter daily. When indicator reads red, replace filter element 7131-1.

CONTROL CIRCUIT FILTER (G095)

Check indicator on filter daily. (Located on top of filter under black rubber boot). When indicator moves to fully up position, replace filter element G095E.

HYDRAULIC TANK BREATHER CAP (7126)

The filter is located in the cap. Remove the cap every 3 months and wash out. (Clean more frequently when working in dusty conditions).

AIR COMPRESSOR FILTER

Check and clean filter on a monthly basis, replace with new element G036E if necessary. (Clean more frequently if working in dusty conditions).

ENGINE AIR FILTER

Check indicator on filter daily. Replace both elements. Inner 8052-1 Outer 8052-2 when indicator reads red.

ENGINE FUEL FILTERS

Replace fuel filters 8354 primary 8355 secondary every 300 hours or when plugging is indicated.

ENGINE OIL FILTER

Replace oil filter and gaskets 8356 each time the engine oil is changed.

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TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Engine will not turn over	Battery switch in "off" position (Note - switch located in engine compartment).	Turn to "On" position.
	Faulty battery. Loose or dirty battery cable ends.	Test & Re-charge Clean and tighten cables.
	Battery switch faulty.	Test & replace if necessary.
	Starter switch faulty.	Test & replace if necessary.
	Faulty starter.	Refer to engine manual.
	Cold Weather.	De-clutch engine (Note - clutch lever located below rear of engine). Heat engine if necessary.
Engine will turn over but not start.	No fuel.	Rectify.
	Air in fuel line.	Bleed air out.
	Dirt or water in fuel or fuel filter.	Drain fuel tank and change fuel filter elements.
	Faulty fuel injectors.	Refer to engine manual.
	Faulty fuel pump	Refer to engine manual.
	Normal engine stop solenoid or lever not operating correctly.	Refer to engine manual.
Engine will start but not continue to run.	Contamination in fuel.	Clean and Refill.
Engine running too hot.	Loose or damaged fan belts.	Adjust or replace.
	Coolant level too low.	Fill to correct level.
	Faulty water pump.	Refer to engine manual.
	Clogged radiator core.	Clean.

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TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Engine will run, hydraulics will not operate	Engine clutch dis-engaged	Engage Clutch
	Engine clutch slipping (Clutch will burn-out if allowed to continue to slip)	Adjust clutch (Refer to manual)
	Hydraulic oil level too low in tank	Fill to level
Winches, Table Swing Track Travel all not working	Pilot circuit control valve (F552) is pushed "in"	Pull valve "out"
	Pilot circuit pressure too low (should be 600 PSI)	Check settings of both relief valves Item #28 Adjust or replace valves as required.
	Faulty control circuit pump (F121)	Check and replace if necessary
Boom winch will lower but not raise	Solenoid valve (F557) not shifting	Check if 12V is at coil when engine is running and control lever ( ) is in raise position. If no volts present check pressure switch (G-056) (replace if necessary). Check wiring. If voltage is OK If voltage is OK check that solenoid valve is moving and is not stuck.
Boom will not winch up or down	Faulty hand control valve (F556)	Check for sticky spools Replace if necessary
	Spool in direction control valve (F553) not shifting	Check and repair or replace as necessary
	Faulty pump (F119 - shaft end pump)	Check & rectify

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TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Main winch not working	Emergency free fall valve is pushed to "In" position	Pull valve to "out" position
	Faulty Hand Control Valve (F556)	Check for sticky spools Replace if necessary
	Relief Valve in directional control valve (F553) stuck open	Check and Rectify
	Spool in directional control valve not shifting	Check & repair or replace as necessary
	Faulty pump (F119 - cover end pump)	Check and replace if necessary
Secondary winch not working	See main winch not working up or down.	
Turn table will not rotate	Table lock key is in lock position	Remove and store lock key
	Faulty hand control valve (F556)	Check for sticky spools Replace if necessary
	Relief valve in directional control valve (F554) stuck open	Check and rectify
	Spool in directional control valve not shifting	Check and repair or replace as necessary
	Faulty pump (F118 - cover end pump)	Check and replace if Necessary
Turn table rotates in one direction only	Faulty port relief valves in directional control valve (F554)	Remove and clean valve Replace if necessary
Track travel not functioning in one direction - other direction norman	Motor relief valves stuck open (located at rear of master motor - F225)	Clean-inspect and replace if necessary
Track Travel not functioning in either direction	Clogged suction filter (G058)	Check vacuum reading of gauge (G062) if reading reaches 10" change filter elements

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TROUBLE SHOOTING GUIDE

PROBLEM	CAUSE	REMEDY
Track travel not not functioning in either direction	Power shift clutch not working	Disconnect and cap hi and low range pressure lines at clutch shaft. Check for 200 PSI pressure using range select switch in cab. If not 200 PSI (min. 150 PSI) check or replace relief valve (F349)

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CLUTCH ADJUSTMENTS

Clutch is of overcenter type, if pump drive clutch does not pull, heats, or operating lever jumps out, adjustment is required. To adjust clutch remove hand hole plate, turn clutch until adjusting lock pin can be reached. Pull adjusting pin out and turn adjusting yoke to right or clockwise until operating lever requires a distinct pressure to engage. A new clutch requires several adjustments until friction discs are worn in.

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MAINTENANCE SCHEDULE

INTERVAL	MAINTENANCE ITEMS	COMPONENT INSPECTIONS
Daily	- Check operation of brakes. - Check engine oil level and condition of oil. - Check hydraulic oil level and condition of oil. - Check engine coolant level and condition of coolant. - Apply general purpose grease to the slewing ring bearing (at the grease nipples). - Apply open gear lube to the slewing ring gear teeth.	- Check brake linkage & shoes. Replace brake shoes if necessary. - Ensure that all operating assemblies are in good shape and that they are functioning properly. - Check all filter condition indicators and change filter elements if necessary. - Check operation of running and working lights, brake lights, and roof beacon. - Ensure that the engine stop is functioning properly. - Ensure that all pump suction line valves are fully open before starting engine. - Once the engine is running, check all gauges for proper reading. The gauges should be frequently re-checked throughout the day. - Check all cables and inspect boom sections for damage. - Inspect all lifting tackle. - Test for proper operation of emergency load release.

PYKE

INTERVAL	MAINTENANCE ITEMS	COMPONENT INSPECTIONS
Weekly	- Check oil level & condition of: - 4 pump drive - axle housings - air compressor - Check condition of air conditioner filter if air conditioner option is installed, and is being used. - Check for proper clutch engagement. Adjust if necessary.	- Check the machine for leaks: - Fuel leaks, engine coolant leaks, hydraulic oil leaks, engine oil leaks, refrigerant leaks if air conditioner option is installed, air leaks in pneumatic system. - Check engine V-belts for proper tension and condition. - Check for loose fasteners. - Check the condition of hoses and fittings.
Monthly	- Change engine oil and filter. - Check level of battery electrolyte. - Lubricate lifting cables.	- Test operation of boom overhoist protection.
Every Other Month	- Change engine oil filters.	
Quarterly	- Change oil in: axle housing 4-pump drive tagline winder (if installed) air compressor	- Test anti-freeze capability of engine coolant.

INTERVAL	MAINTENANCE ITEMS	COMPONENT INSPECTIONS
Quarterly cont'd	- Clean and tighten battery cables. - Lubricate throttle cable with graphite.	
Semi-Annually	- Steam clean engine radiator and oil cooler. (NOTE: Clean more often if working in dusty conditions).	- Inspect hydraulic oil cooler and take hydraulic oil temperature readings. - Check operation and pressure setting of relief valves in hydraulic circuit. - Check hydraulic pumps and motors for by-pass of hydraulic oil, also check pressure. - Inspect axle bearing housings for wear. - Inspect and measure all wheels for excessive wear. - Test operation of transmission over-speed protection.
Annually	- Change hydraulic fluid and filter elements. - Charge air conditioner (optional item) with refrigerant if required. - Replace filtered breathers.	- Inspect complete machine and repair as required. - Inspect fuel tank for build-up of sludge. - Inspect hydraulic tank for build-up of sludge. - Wash and inspect hydraulic tank suction strainers and replace if necessary.

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PRE-OPERATION CHECK

The following items should be checked daily before starting the machine.

Check Fluid Levels

1. Hydraulic Fluid Level - Top up when necessary with Gulf Harmony AW46 or compatible fluid.

2. Check Fuel Level.

3. Engine oil - check dip stick and top up when necessary with SAE 30 or SAE 40 oil.

4. Engine coolant Level - open pressure cap and check, add anti-freeze or water as necessary.

5. Air Compressor - check level with dip stick, Add SAE 10W as required.

6. Axle Housings - check oil level plug, Add SAE EP90 as required to bring level up to hole.

7. Tag Line Winder - check oil level plug. Add SAE 40 as required.

Check machine for leaks

Visually examine the machine for leaks - These may be hydraulic, engine oil - coolant, etc.

Check for damaged lifting equipment

Check cables, pins used for attaching boom sections, sheave blocks, etc.

Check that all pump suction line valves are fully opened

It is good practice to have all valves opened and then locked in the open position. Expensive damage can be caused to the machine by running the engine when these valves are not fully open.

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ENGINE STARTING

Disconnect main engine clutch. The lever for this is located at the rear of engine below bell housing. Note: it will only be necessary to disconnect this clutch in cold weather, permitting the engine to be started under no load condition. Switch on Battery Disconnect Switch which is located in engine compartment. Check that the pilot circuit control valve (Located on inner cab wall) is pushed in. This will render all hydraulic function controls inoperative to prevent accidental operation.

Set engine at 1/4 throttle.

Turn ignition switch to start engine.

In warmer weather allow engine to idle (with clutch engaged) to warm up hydraulic oil before using the machine. After warm-up increase to full throttle.

In cold weather conditons allow engine to warm for about 10 minutes, then engage main clutch. Allow machine to idle like this until the hydraulic oil tank has warmed tp to at least 60°F. Use machine for light duty only until the hydraulic oil has warmed up to 100°F.

Remember to pull out pilot circuit control valve when ready to work the machine.

When the oil has warmed to operating temperature (140°F - 160°F) make a habit of checking the reading of the vacuum gauge. This reading should be less than 10 inches of mercury. If the reading is higher change suction filter item G-058. Continuing to run the machine with a high suction reading can cause extensive damage to the track travel system.

The control panel contains gauges reading engine oil pressure, water temperature and ammeter reading. These gauges should always be checked when first starting engine and frequently checked whilst engine is running. Continuing to run when oil pressure reading is low or water temperature high can cause extensive damage to engine.

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TOWING PROCEDURE

To Tow the crane in a train consist, the following steps must be taken

1. Remove the suspension lock-out plates so that machine is in travel mode.
2. Install the table rotate lock-out plates.
3. Disconnect the boom from the crane body.
4. Disconnect and remove both axle driveshafts.
5. Ensure that the brakes are released and that the train brake lines are attached (both ends). Test brakes.
6. DO NOT EXCEED 30 MPH.

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EMERGENCY PUMP OPERATION: An emergency pump is provided in case there is a malfunction of the engine or hydraulic pump. The emergency pump will operate the winches or the swing motor, however, it will not operate the track drive system. The emergency pump is located on the upper deck between the cab and the engine compartment near the swing mechanism. Attached to the emergency pump is a #6 J.I.C. hose which is long enough to reach the winches and/or the swing motor.

Hook-up: Attach the #6 line from the emergency pump to the supply side on the swing motor (or winch motor). Plug the #16 supply line so that oil is forced through the swing motor (or winch motor). CAUTION: Do not mistakenly cap the #16 return line or damage to the component may occur. Once the hook-up is complete, push the electrical button near the emergency pump to operate the function.

NOTE: In order to obtain the opposite direction of rotation of the component, attach the #6 line from the emergency pump to the opposite side of the swing motor (or winch motor).

SPECIFICATIONS

18/20 TON RAIL CRANE
MACHINE SPECIFICATIONS

OVERALL DIMENSIONS:

Length	:	18' 4"
Width	:	9' 8"
Height	:	11' 6"
Weight	:	86,600 lbs. @ 18 Ton Crane
		96,000 lbs. @ 20 Ton Crane
Tail Swing	:	6' 11"
Boom Lengths	:	Primary - 17' 7", Secondary - 17' 6"

CAPACITIES:

Hydraulic Tank	:	220 U.S. Gallons (Gulf Harmony AW46)
Fuel Tank	:	110 U.S. Gallons
Axle Housing	:	4.2 U.S. Gallons (EP 90)
Power Shifted Gear Box	:	Flooded by Hydraulic System
4 Pump Drive	:	
Air Compressor	:	.75 u.S. Gallons (SAE 10W)
Rudomatic Cable Winder	:	2 U.S. Gallons (Winter SAE20, Summer SAE 40)
Lifting Capacities	:	See chart on page 5-3 For 18 Ton 5-4 For 20 Ton

ENGINE:

Make and Model	:	General Motors 6V 53T
Horse Power	:	250 H.P.
Full Load Governer R.P.M.	:	2500 R.P.M.
High Idle R.P.M.	:	2700 R.P.M.

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VALVE PRESSURE SETTINGS

Control Circuit	Valve #F-349	600 PSI
Power Shift Clutch	Valve #F-349 Valve #F-528	200 PSI 20 PSI
Track Drive	Pump #117	Compensator setting 4300 PSI, Charge pressure relief valve 230 PSI
	Motor # F-225	Compensator Setting 3700 PSI, Relief valve sett-5000 PSI. Charge pressure relief valve 180 PSI
Boom Hoist Winch	Valve #F-553	2600 PSI
Main Hoist Winch	Valve #F-553	2600 PSI
Auxiliary Hoist Winch	Valve #F-553	2600 PSI
Table Swing	Valve #F-553	2200 PSI - Port Relief Valves 2600 PSI
Compressor Drive Circuit	Valve #F-311	2000 PSI
Generator Drive Circuit	Valve #F-311	2000 PSI
Emergency Pump Circuit	Valve #F-347	3100 PSI
Outriggers Circuit	Valve #F-349	1000 PSI

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CAPACITY CHART

– Deduct Hook Block Weight

BOOM LENGTH	RADIUS FEET	BOOM ANGLE	LOAD-LBS. OVER SIDE	LOAD-LBS. OVER END
35ft.	12	77°	26500	36000
	15	72	20000	30000
	20	63	14000	23000
	25	53	10750	18000
	30	42	8250	14000
	35	28	6700	11500
	40	0	5500	9750
	45	–	--	--
	50	–	--	--
	55	–	--	--
	60	–	--	--
45ft.	12	80°	25000	34000
	15	76	18750	29000
	20	69	12850	22500
	25	62	9650	17500
	30	55	7650	13500
	35	47	6150	11000
	40	38	5100	9500
	45	25	4250	8400
	50	0	3600	7500
	55	–	--	--
	60	–	--	--
55ft.	12	–	--	--
	15	78°	17750	28000
	20	73	12000	21600
	25	68	8900	16700
	30	62	7000	12800
	35	56	5600	10400
	40	49	4600	9100
	45	42	3800	8100
	50	33	3200	7250
	55	22	2650	6500
	60	0	2300	5750

Note: crane capacity chart applies when boom is in either heel position.

20 TON CRANE MODEL 8020

CAPACITY CHART

– Deduct Hook Block Weight

BOOM LENGTH	RADIUS FEET	BOOM ANGLE	LOAD – LBS.	
			OVER SIDE	OVER END
35ft.	12	77°	30500	41000
	15	72	24000	35500
	20	63	16500	27600
	25	53	12400	21500
	30	42	9900	17000
	35	28	7800	14000
	40	0	6600	12000
	45	-	--	--
	50	-	--	--
	55	-	--	--
	60	-	--	--
45ft.	12	80°	28500	39500
	15	76	23250	34500
	20	69	15900	27000
	25	62	11900	21000
	30	55	9600	16600
	35	47	7500	13600
	40	38	6300	11800
	45	25	5200	10200
	50	0	4400	9200
	55	-	--	--
	60	-	--	--
55ft.	12	-	--	--
	15	78°	21500	33000
	20	73	14900	25500
	25	68	11300	19500
	30	62	9000	15300
	35	56	7300	12700
	40	49	6100	11000
	45	42	5100	9650
	50	33	4200	8700
	55	22	3400	7850
	60	0	3000	7000

Note: crane capacity chart applies when boom is in either heel position.