OPERATORS AND SAFETY MANUAL

WORLD HEADQUARTERS

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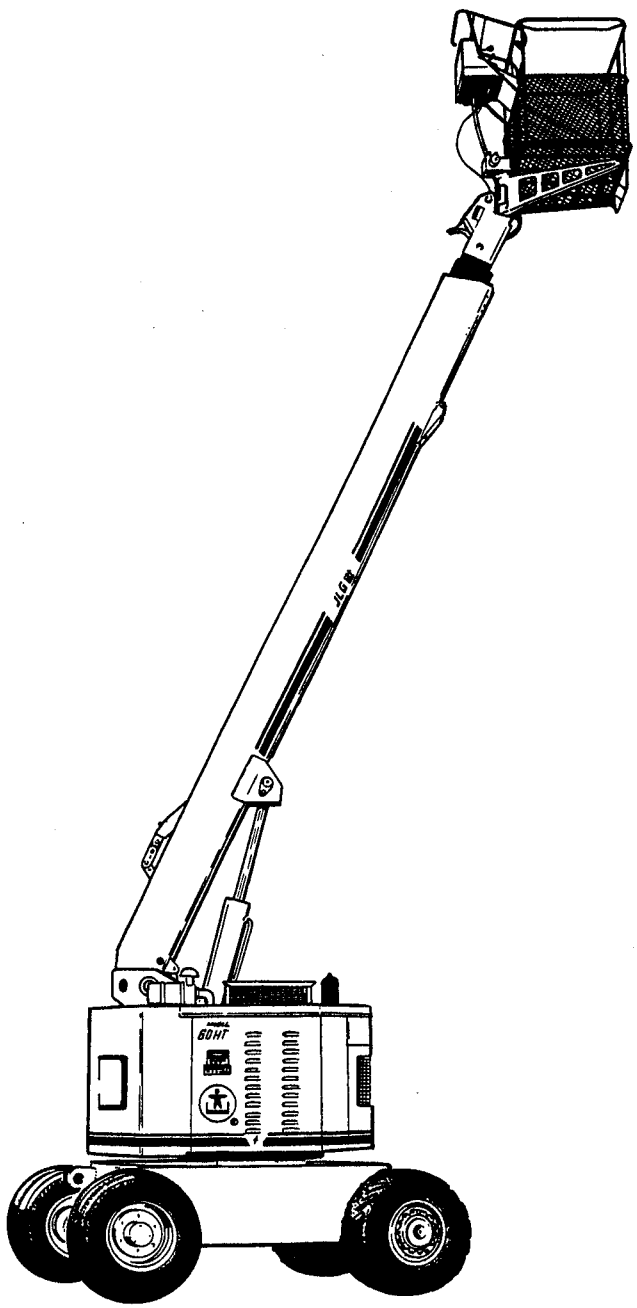

MODEL 60HT

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PLEASE READ

FOREWORD

The purpose of this manual is to provide the customer with the operating procedures essential for the promotion of proper machine operation for its intended purpose. It is impossible to over-stress proper usage. All information in this manual should be READ and UNDERSTOOD before any attempt is made to operate the machine. YOUR OPERATING MANUAL IS YOUR MOST IMPORTANT TOOL — Keep it with the machine.

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICE IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

ALL PROCEDURES HEREIN ARE BASED ON THE USE OF THE MACHINE UNDER PROPER OPERATING CONDITION, WITH NO DEVIATIONS FROM THE ORIGINAL DESIGN. ALTERATION AND/OR MODIFICATION OF THE MACHINE IS STRICTLY FORBIDDEN WITHOUT WRITTEN APPROVAL FROM JLG INDUSTRIES, INC.

A MOST IMPORTANT FACT TO REMEMBER IS THAT ANY EQUIPMENT IS ONLY AS RELIABLE AS THOSE WHO OPERATE IT.

WARNING, CAUTION, AND NOTE DEFINITIONS

Since safety of personnel and proper use of the machine are of primary concern, WARNINGS, CAUTIONS, and NOTES are inserted throughout this manual to emphasize these areas. They are defined as follows:

WARNING

IF NOT CORRECTLY FOLLOWED, COULD RESULT IN INJURY OR DEATH TO PERSONNEL.

CAUTION

IF NOT STRICTLY OBSERVED, COULD RESULT IN DAMAGE TO, OR DESTRUCTION OF, EQUIPMENT.

Note

Provides information of special interest to illustrate the text.

Note

In this manual, all stenciled or placarded nomenclature is capitalized.

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LIST OF ILLUSTRATIONS

1-1. GENERAL.

a. This section prescribes the proper and safe practices for major areas of machine usage which have been divided into two basic categories: Driving and Operation. In order to promote proper usage of the machine, it is mandatory that a daily routine be established by a qualified person and must be followed to ensure that the machine is safe to operate.

b. The user of the machine should not accept operating responsibility until this manual has been read and operation of the machine, under the supervision of a qualified user, has been completed. If there is a question on application and/or operation, JLG Industries Safety Engineering should be consulted before undertaking the intended use.

WARNING

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICE IN THIS AREA IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

WARNING

MODIFICATION OF THE MACHINE WITHOUT CERTIFICATION BY A RESPONSIBLE AUTHORITY THAT THE MACHINE IS AT LEAST AS SAFE AS ORIGINALLY MANUFACTURED IS A SAFETY VIOLATION.

1-2. DRIVING.

a. Before undertaking any driving application the user should be well orientated with the machine to ensure movement in the desired direction. The user should also become familiar with the required braking distance before working in close quarters.

b. The user should be familiar with the driving surface before driving. The surface should be firm and level and grades should not exceed the allowable grade, as indicated on the CAUTION placard at the platform control station.

Note

Remember that the key to proper usage is common sense and its proper application.

WARNING

FAILURE TO COMPLY WITH THE SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

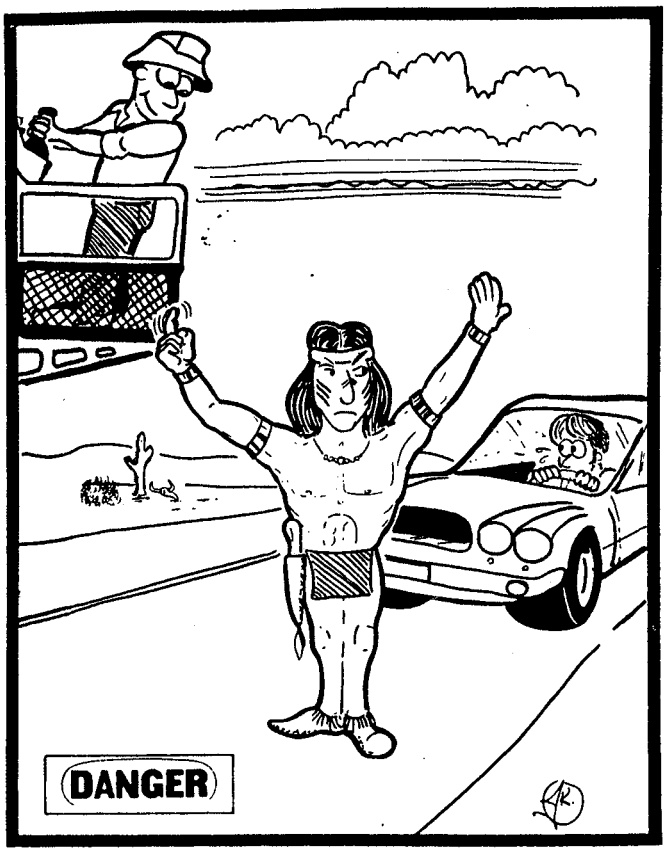
DRIVING.

DO NOT USE HIGH SPEED IN RESTRICTED OR CLOSE AREAS OR WHEN DRIVING IN REVERSE.

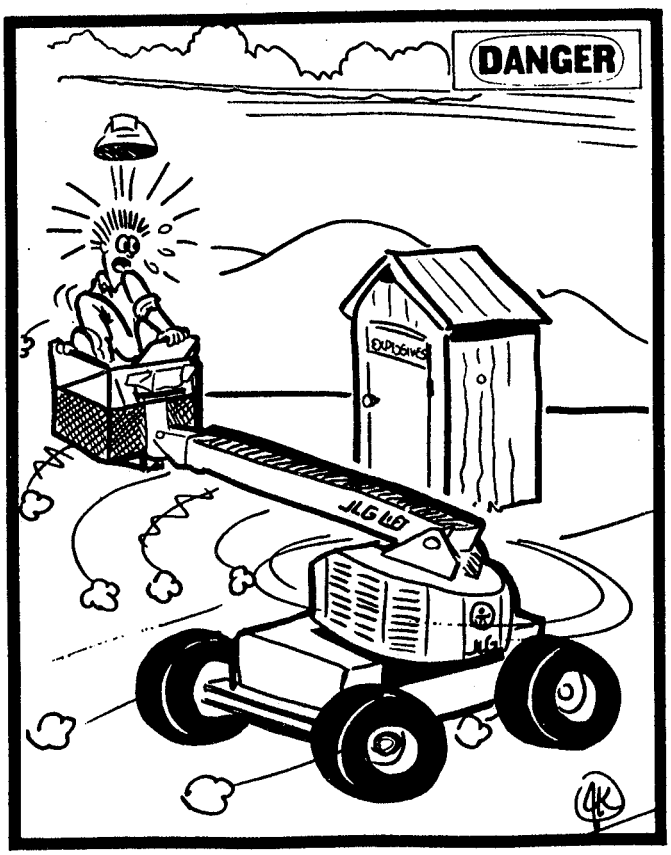
REVERSE TRAVELING IS INTENDED FOR WORK SITE MOBILITY ONLY.

ENSURE PROPER ORIENTATION OF TURNTABLE FOR INTENDED DIRECTION OF TRAVEL. CHECK DIRECTIONAL ARROWS ON MACHINE.

BE AWARE OF CLEARANCES WHEN TRAVELING OR TOWING.



ALWAYS POST A LOOKOUT WHEN USERS VIEW IS OBSTRUCTED.



LOCK TURNTABLE BEFORE TRAVELING.

ALWAYS POST A LOOKOUT WHEN DRIVING IN AREAS WHERE VISION IS RESTRICTED.

DO NOT USE DRIVE FUNCTION TO MANEUVER MACHINE CLOSE TO OBSTACLES. USE TELESCOPE OR SWING.

ALWAYS POSITION BOOM IN LINE WITH DIRECTION OF TRAVEL.

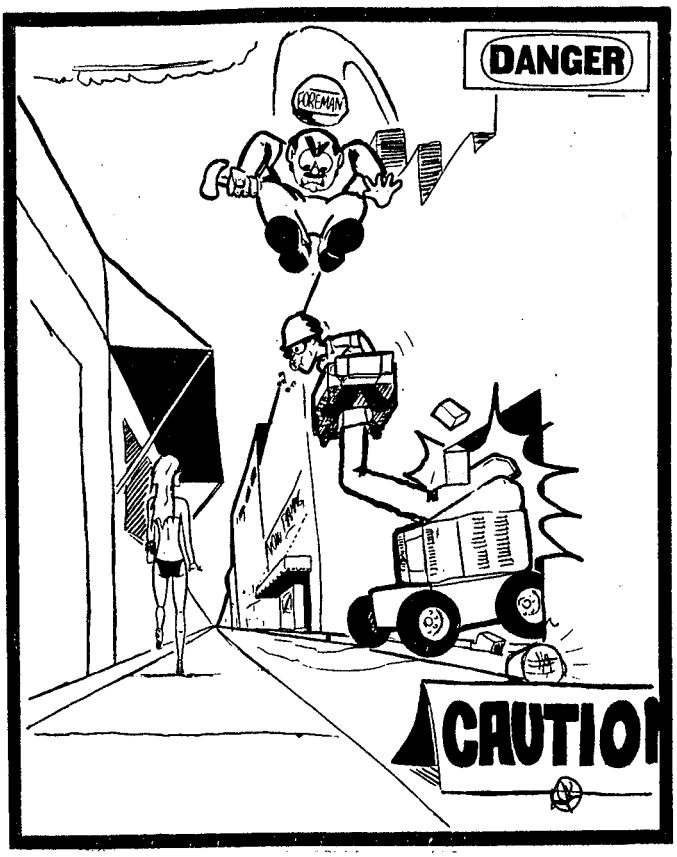
ALWAYS SECURE TURNTABLE PRIOR TO ANY EXTENDED TRAVELING.

WARNING

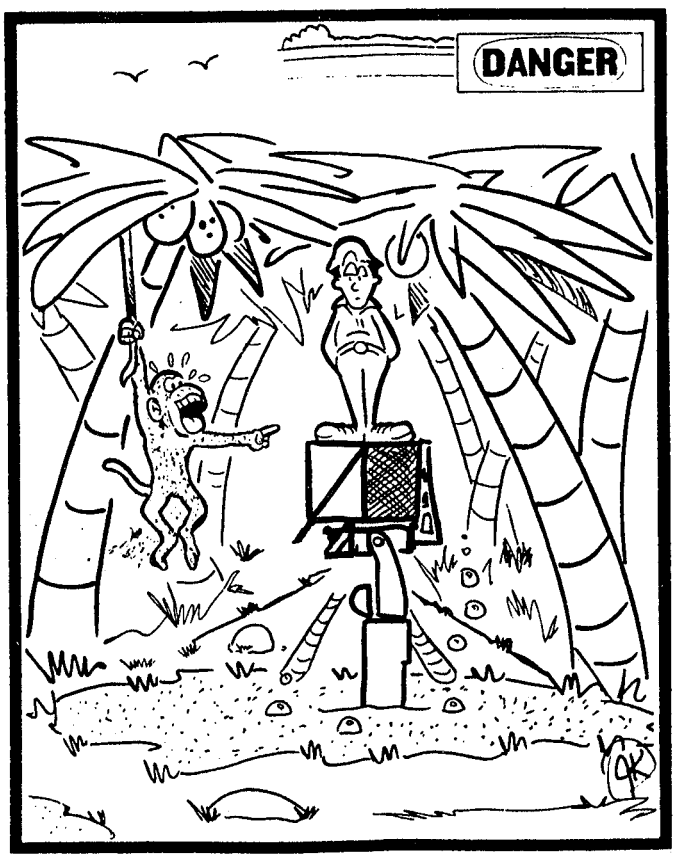
FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

KEEP YOUR EYES AND MIND FIXED IN THE DIRECTION OF TRAVEL.

DO NOT TOW MACHINE. THIS MACHINE IS NOT EQUIPPED WITH PROVISIONS FOR TOWING.



ALWAYS LOOK IN DIRECTION OF TRAVEL.



NEVER OPERATE ON SOFT OR UNEVEN SURFACES.

MACHINE MUST BE MECHANICALLY ASSISTED WHEN TRAVELING GRADES EXCEEDING MAXIMUM ALLOWABLE GRADE AS INDICATED ON CAUTION PLACARD AT PLATFORM CONTROL STATION.

DO NOT TRAVEL OR WORK MACHINE ON SOFT OR UNEVEN SURFACES, AS TIPPING WILL OCCUR.

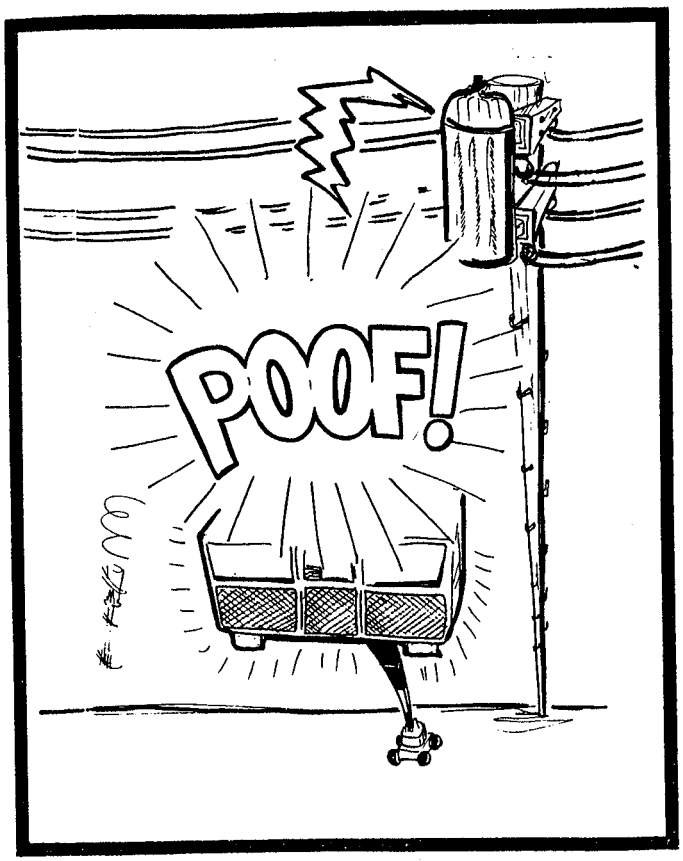
WARNING

FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

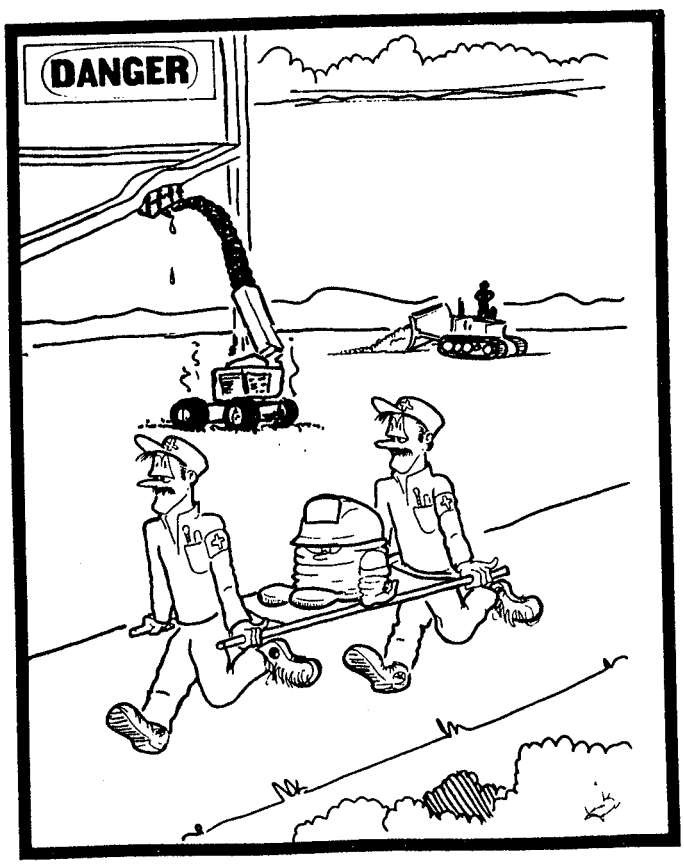
OPERATION.

MAINTAIN SAFE CLEARANCE FROM ELECTRICAL LINES AND APPARATUS. ALLOW FOR BOOM SWAY, ROCK OR SAG AND ELECTRICAL LINE SWAYING. THE MACHINE DOES NOT PROVIDE PROTECTION FROM CONTACT WITH OR PROXIMITY TO AN ELECTRICALLY CHARGED CONDUCTOR.

MAINTAIN A CLEARANCE OF AT LEAST 10 FEET BETWEEN ANY PART OF THE MACHINE OR ITS LOAD AND ANY ELECTRICAL LINE OR APPARATUS CARRYING UP TO 50,000 VOLTS. ONE FOOT ADDITIONAL CLEARANCE IS REQUIRED FOR EVERY ADDITIONAL 30,000 VOLTS OR LESS.



MAINTAIN A SAFE CLEARANCE FROM ELECTRICAL LINES AND APPARATUS.



THOROUGHLY CHECK ALL CLEARANCES BEFORE POSITIONING PLATFORM.

ALLOW ONLY THOSE AUTHORIZED AND QUALIFIED PERSONNEL TO OPERATE MACHINE WHO HAVE DEMONSTRATED THAT THEY UNDERSTAND THE PROPER OPERATION AND MAINTENANCE OF THE UNIT.

NEVER USE BOOM FOR ANY PURPOSE OTHER THAN POSITIONING PERSONNEL AND THEIR TOOLS AND EQUIPMENT.

CHECK CLEARANCES ABOVE AND ON SIDES AND BOTTOM OF PLATFORM WHEN RAISING, LOWERING, SWINGING, AND TELESCOPING BOOM.

NEVER DISABLE OR MODIFY THE FOOTSWITCH OR ANY OTHER SAFETY DEVICE. ANY MODIFICATION OF THE MACHINE IS A SAFETY VIOLATION AND IS A VIOLATION AGAINST OSHA RULES.

WARNING

FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

KEEP OIL, MUD, GREASE, AND LIKE SLIPPERY SUBSTANCES CLEANED FROM YOUR FOOTWEAR AND PLATFORM DECK.

ENSURE MACHINE IS POSITIONED ON A FIRM, LEVEL AND UNIFORM SUPPORTING SURFACE BEFORE RAISING OR EXTENDING BOOM.

KEEP SHOES AND DECK CLEAN.

KNOW YOUR CAPACITY AND OPERATE WITHIN IT.

NEVER OPERATE OR RAISE BOOM WHEN MACHINE IS ON A TRUCK, OTHER VEHICLE OR ABOVE GROUND STRUCTURE.

ALL WHEELS SHOULD BE CHOCKED WHILE MACHINE IS BEING USED IN STATIONARY OPERATION.

NEVER EXCEED MANUFACTURER'S RATED PLATFORM CAPACITY — REFER TO MECHANICAL CAPACITY INDICATOR.

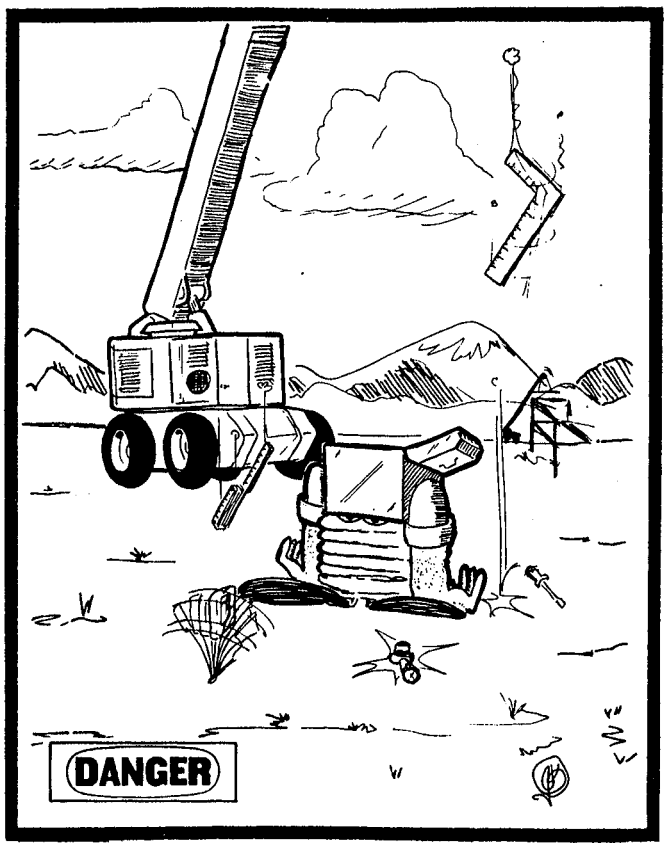
NEVER OPERATE A MALFUNCTIONING MACHINE. IF A MALFUNCTION OCCURS, SHUT DOWN THE MACHINE AND NOTIFY PROPER AUTHORITIES.

WARNING

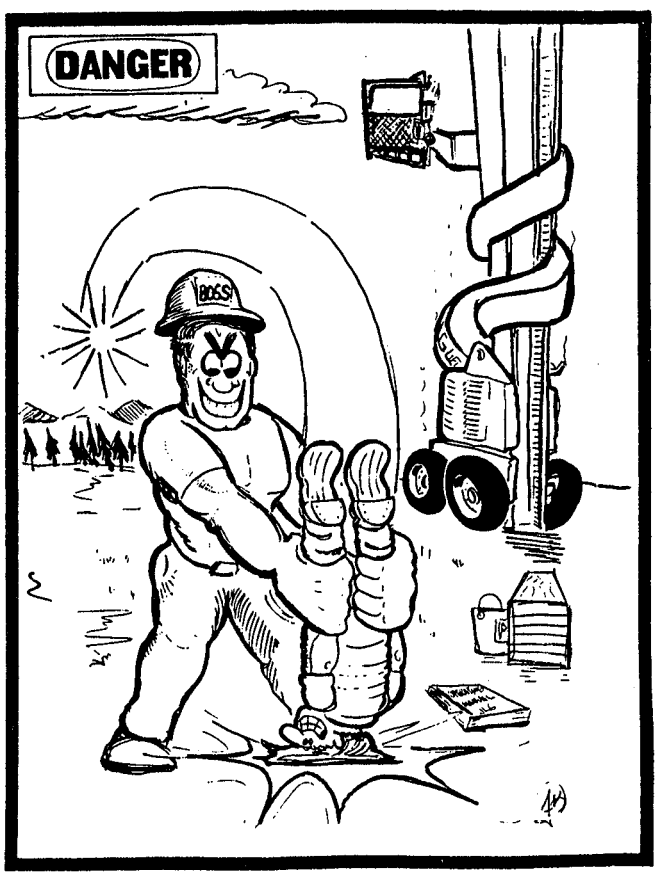
FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

DO NOT ALLOW GROUND PERSONNEL IN AREAS AROUND AND UNDER RAISED PLATFORM.

TO AVOID FALLING — USE EXTREME CAUTION WHEN ENTERING/LEAVING PLATFORM ABOVE GROUND. ENTER/EXIT THRU GATE ONLY. PLATFORM MUST BE WITHIN ONE (1) FOOT OF ADJACENT — SAFE AND SECURE — STRUCTURE. ALLOW FOR PLATFORM VERTICAL MOVEMENT WHEN ENTERING OR LEAVING PLATFORM.



KEEP EVERYONE CLEAR OF A WORKING PLATFORM.



READ YOUR MANUAL; UNDERSTAND WHAT YOU'VE READ — THEN BEGIN OPERATIONS.

APPROVED HEAD GEAR SHOULD BE WORN BY ALL OPERATING AND GROUND PERSONNEL.

READ AND OBEY ALL WARNING, CAUTIONS AND OPERATING INSTRUCTIONS ON MACHINE AND IN THIS MANUAL.

BE FAMILIAR WITH LOCATIONS AND OPERATION OF ALL ALTERNATE AND OVERRIDE CONTROLS.

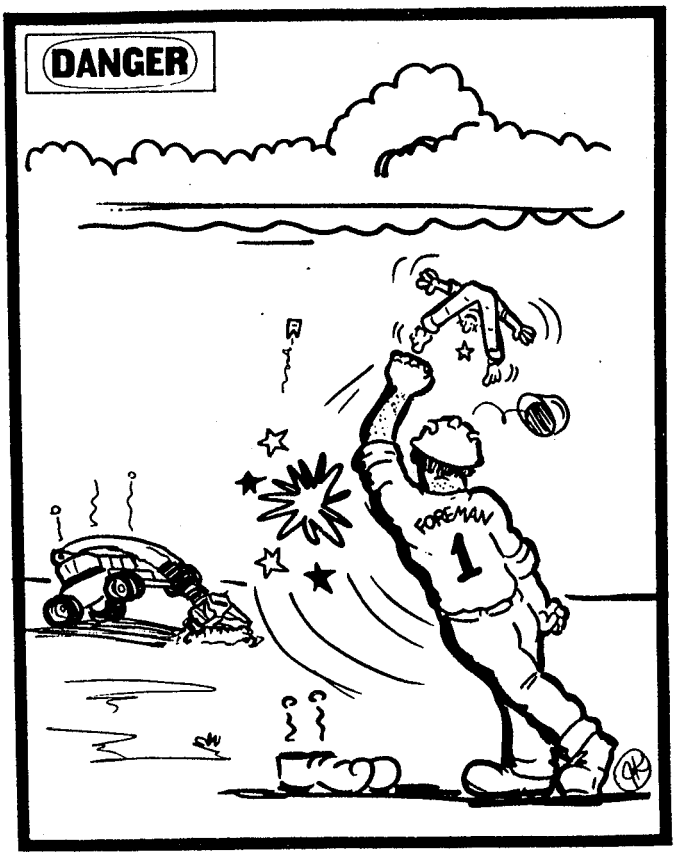
MACHINE SHOULD ALWAYS BE SHUT DOWN WHEN REFUELING. NO SMOKING IS MANDATORY. NEVER REFUEL DURING AN ELECTRICAL STORM. ENSURE THAT CAP IS CLOSED AND SECURE AT ALL OTHER TIMES.

WARNING

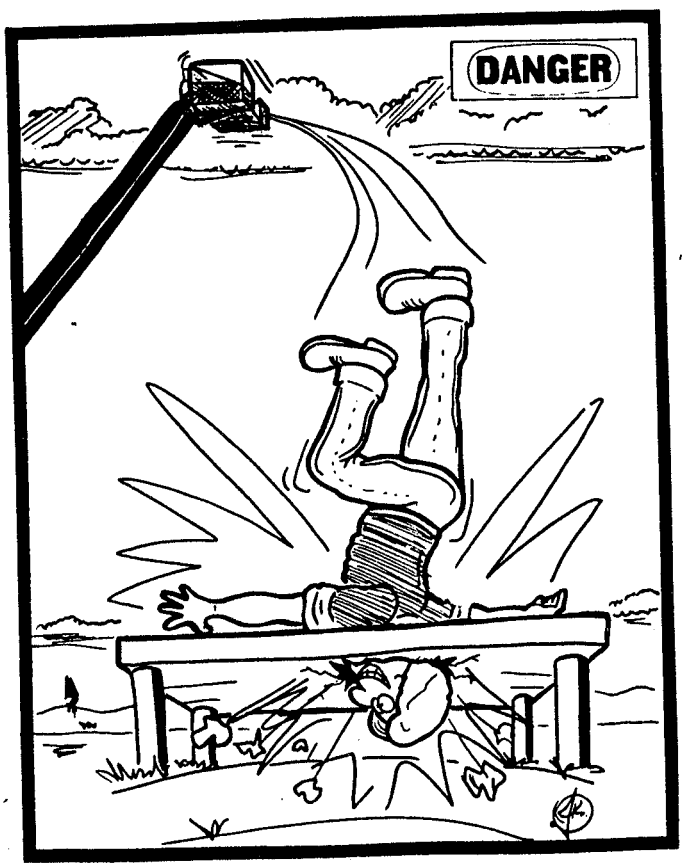
FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

NEVER ATTEMPT TO FREE MACHINE BY LIFTING IT OFF THE GROUND WITH THE BOOM.

NEVER ATTACH WIRE, CABLE, OR ANY SIMILAR ITEMS TO PLATFORM.



THE BOOM AIN'T NO JACK, JACK — IT ONLY POSITIONS THE PLATFORM.



KEEP BOTH FEET ON DECK, OR YOU MAY GO DOWN IN HISTORY.

WHEN RIDING IN OR WORKING FROM A PLATFORM, BOTH FEET MUST BE FIRMLY POSITIONED ON THE DECK.

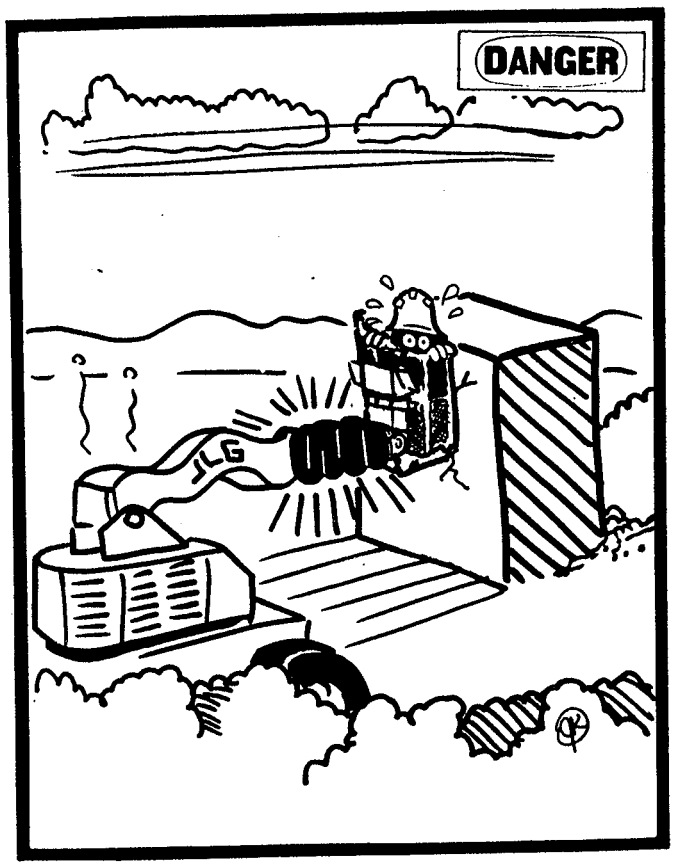
ALWAYS USE SAFETY BELT. SECURE BELT LANYARD TO PROPER ATTACH BAR ON PLATFORM, NEVER TO AN ADJACENT OBJECT OR STRUCTURE.

WARNING

FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

DO NOT USE THE DRIVE OR TELESCOPE FEATURES OF THE MACHINE TO MOVE EITHER THE MACHINE OR OTHER OBJECTS.

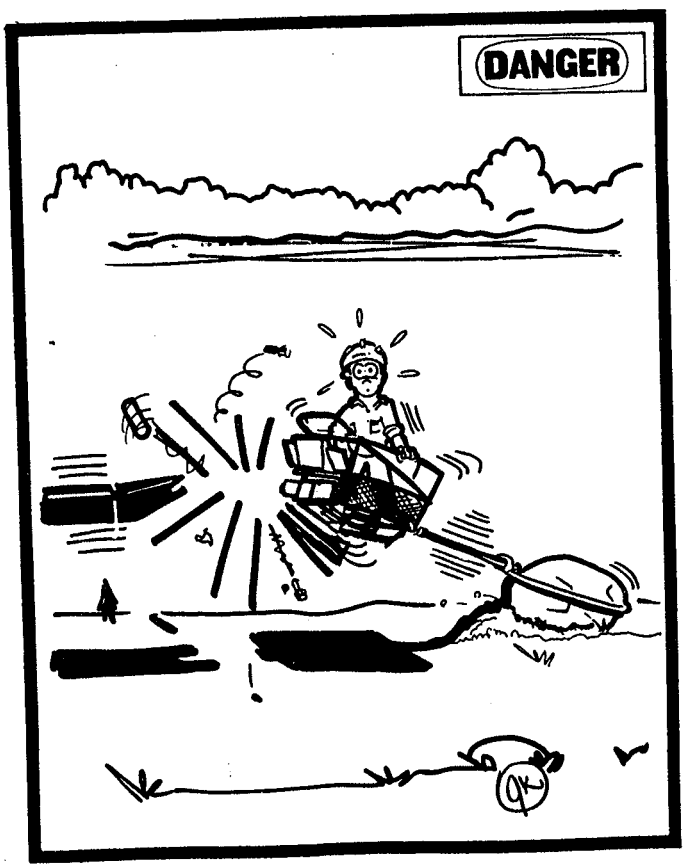
DO NOT OPERATE ANY MACHINE ON WHICH DANGER, WARNING, CAUTION OR INSTRUCTION PLACARDS OR DECALS ARE MISSING OR ILLEGIBLE.



NEVER PUSH THE MACHINE, OR OTHER OBJECTS, BY TELESCOPING THE BOOM.

DO NOT PULL THE MACHINE OR OTHER OBJECTS BY ATTACHING WIRE, CABLE OR SIMILAR ITEMS TO THE PLATFORM AND THEN RETRACTING THE BOOM.

DO NOT ACCEPT MACHINE OPERATING RESPONSIBILITIES UNTIL ADEQUATE TRAINING IN EQUIPMENT OPERATION HAS BEEN GIVEN BY COMPETENT AND KNOWLEDGEABLE PERSONNEL.



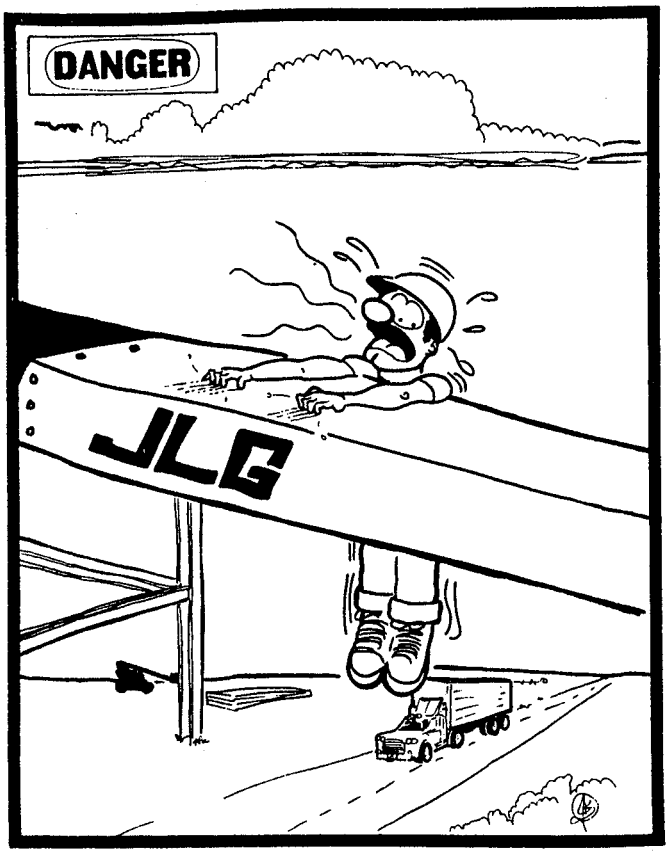
NEVER PULL THE MACHINE, OR OTHER OBJECTS, BY RETRACTING THE BOOM.

WARNING

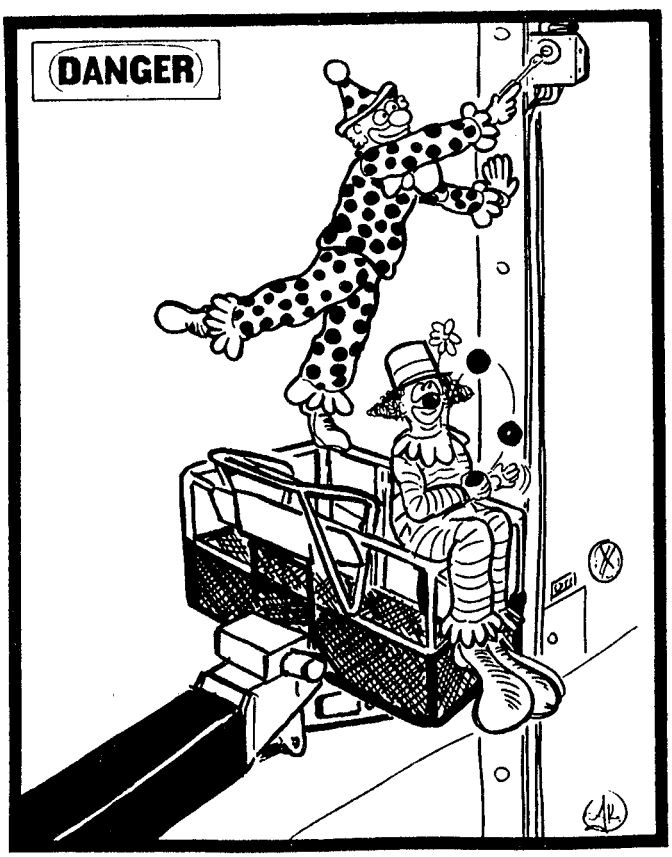
FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

NEVER "WALK THE BOOM" TO GAIN ACCESS TO OR LEAVE PLATFORM.

NEVER "SLAM" A CONTROL LEVER THROUGH NEUTRAL TO OPPOSITE DIRECTION; RETURN LEVER TO NEUTRAL; STOP — THEN PROCEED.



LADDERS ARE FOR CLIMBING — NOT BOOMS.



NO CIRCUS ACTS IN THE PLATFORM.

NEVER POSITION LADDERS, STEPS, OR SIMILAR ITEMS ON UNIT TO PROVIDE ADDITIONAL REACH FOR ANY PURPOSE.

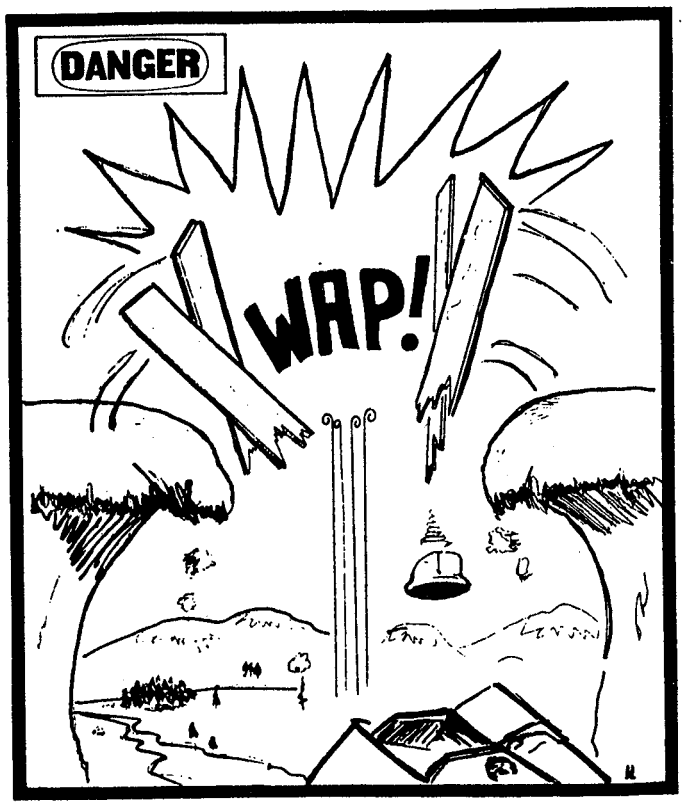
STOW BOOM AND SHUT OFF ALL POWER BEFORE LEAVING MACHINE.

ALWAYS ACTUATE CONTROLS WITH SLOW EVEN PRESSURE.

WARNING

FAILURE TO COMPLY WITH SAFETY REGULATIONS LISTED IN THIS SECTION MAY RESULT IN MACHINE DAMAGE, PERSONNEL INJURY OR DEATH AND IS A SAFETY VIOLATION.

CHECK LOAD CAPACITIES OF FLOORS OR BRIDGES BEFORE CROSSING OR OPERATING ON THE STRUCTURE, CHECK TO ASSURE THEY WILL SUPPORT A WEIGHT GREATER THAN THE COMBINATION OF MACHINE AND LOAD.



CHECK LOAD CAPACITIES OF FLOORS OR BRIDGES.

2-1. GENERAL.

This section provides the necessary information needed by those personnel that are responsible to place the machine in operation readiness, and lists checks that are performed prior to use of the machine. It is important that the information contained in this section be read and understood before any attempt is made to operate the machine. Ensure that all the necessary inspections have been completed successfully before placing the machine into service. These procedures will aid in obtaining maximum service life and safe operation.

WARNING

SINCE THE MACHINE MANUFACTURER HAS NO DIRECT CONTROL OVER THE FIELD INSPECTION AND MAINTENANCE, SAFETY IN THIS AREA IS THE RESPONSIBILITY OF THE OWNER/OPERATOR.

2-2. PREPARATION FOR USE.

a. Before a new machine is put into operation it must be carefully inspected for any evidence of damage resulting from shipment and inspected periodically thereafter, as outlined in the Delivery and Periodic Inspection (see Paragraph 2-3). The unit should be thoroughly checked for hydraulic leaks during initial startup and run. A check of all components should be made to assure their security.

b. All preparation necessary to place the machine in operation readiness status should be the responsibility of management personnel. Most preparatory requirements are relatively simple and usually involve little more than good common sense, (i.e. telescope works smoothly and brakes operate properly) coupled with a series of visual inspections. This method is most effective toward retaining constant readiness. The mandatory requirements are given in the Machine Daily Inspection (see Paragraph 2-4).

c. It should be assured that the items appearing in the Delivery and Periodic Inspection and Functional Check are complied with prior to putting the machine into service.

2-3. DELIVERY AND PERIODIC INSPECTION.

a. The following checklist provides a systematic inspection to assist in detecting defective, damaged, or improperly installed parts. The checklist denotes the items to be inspected and conditions to examine.

b. Chassis.

(1). Check front tire and wheel assembly for loose or worn spindle, components for security, tires for wear and cuts.

(2). Check steering assembly for loose or bent tie rods, cylinder and lines for leaks and security, and hardware for proper installation.

(3). Check rear tire and wheel assembly for security of components, tires for wear and cuts.

(4). Check drive hubs, hydraulic motors, brakes, and lines for visible damage and leaks.

(5). Check oil level in drive hub by removing pipe plug on side and feeling for oil level. (Contact service personnel for assistance if needed.)

(6). Check counterbalance, flow divider valves, hydraulic swivel assembly and lines for visible damage, evidence of leakage, and security, and electrical connections for corrosion and tightness.

c. Turntable.

(1). Check turntable for visible damage, loose or missing parts, and security. Check lift cylinder and lines for visible damage; evidence of leakage, and security. Check swing drive hub, hydraulic motor, and brake for visible damage, loose or missing parts, lines and housing for evidence of leakage; pinion for proper mesh with swing gear.

(2). Check swing bearing for visible damage and evidence of lubrication and security.

(3). Check solenoid valves and lines for visible damage, evidence of leakage, and security, and electrical connection for corrosion and tightness.

(4). Check ground controls for visible damage, loose or missing parts, security, electrical connections for corrosion and tightness and wiring for defects and chaffing damages. Assure that all switches function properly.

(5). Check manual descent valves for visible damage, evidence of leakage and security. Assure that valves function properly.

(6). Check battery for visible damage, loose or missing vent caps, electrical connections for corrosion and tightness, holddown brackets for tightness, and electrolyte for proper level. Add only clean distilled water to battery.

(7). Check engine and accessories for visible damage, loose or missing parts, evidence of leakage, and security. Check throttle solenoid and linkage for visible damage and electrical connections for corrosion and tightness.

(8). Check fuel lines for visible damage, evidence of leakage, and security.

(9). Check all cowl and access doors for visible damage, proper operation of latches and security.

(10). Check fuel tank and lines for visible damage, evidence of leakage, and filler cap for security.

(11). Check hydraulic reservoir and lines for visible damage, evidence of leakage, and security. Check filter indicator for condition of element. Clean and/or replace elements as required.

(12). Check master leveling cylinder and cross pins, and lines for visible damage, wear, lubrication, evidence of leakage, and security.

(13). Check boom pivot bushings for evidence of lubrication and wear. (Lubricate every 10 hours of operation.)

(14). Check lift cylinder and hydraulic lines for evidence of leakage and security.

(15). Check cross pins for damage, wear and security.

d. Boom.

(1). Check pivot and lift cylinder shaft retainer screws for visible damage and security. Lubricate pins as required.

(2). Check telescope cylinder and cross pins, and lines for visible damage, wear, lubrication, evidence of leakage, and security.

(3). Check boom for visible damage, loose or missing parts, and security.

(4). Check wear pads for visible damage, wear, and security.

(5). Check hydraulic line and electrical cable track assembly for visible damage, loose or missing parts, and security.

(6). Check hydraulic and electrical lines in cable track for visible damage.

(7). Check slave leveling cylinder and cross pins and lines for visible damage, wear, lubrication, evidence of leakage, and security.

(8). Check boom/platform pivot pins for lubrication. (Lubricate every 10 hours of operation.)

(9). Check lift cylinder to boom attach pivot point for wear and evidence of lubrication. (Lubricate every 10 hours of operation.)

(10). Check boom tape for correct length and for tearing or defacing at any point.

e. Platform.

(1). Check platform and Control Console for visible damage, loose or missing parts, and security.

(2). Check control levers for visible damage, loose or missing parts and security. Assure that levers function properly.

(3). Check control switches for visible damage, loose or missing parts, security, electrical connections for corrosion and tightness, and wiring for defects and chaffing damage. Assure that switches function properly.

(4). Check capacity indicator for correct operation, any damage and that decals are not defaced. Ensure indicator dial is zeroed with boom at horizontal and indicator dial moves in accordance with boom angle.

(5). Check access gate hinges and latch for damage and security.

Note

Check all warnings, cautions, dangers, and instruction placards for legibility and security around the entire machine.

WARNING

DO NOT OPERATE MACHINE IF ALL PLACARDS ARE NOT ON MACHINE OR ARE DEFACED AND NOT READABLE, USE OF MACHINE WITHOUT CORRECT PLACARDS IS A SAFETY VIOLATION.

2-4. DAILY INSPECTION.

a. It is the user's responsibility to inspect the machine before the start of each workday. It is recommended that each user inspect the machine before operation, even if the machine has already been put into service under another user. This Daily Inspection is the perferred method of inspection.

b. In addition to the Daily Inspection, be sure to include the following items:

(1). Check all standing surfaces for oil, fuel, and hydraulic oil spillage and foreign objects. Ensure overall cleanliness.

(2). Keep all information and operating placards clean and unobstructed. Cover when spray painting to protect legibility.

(3). Ensure a machine operating record is kept, check to see that it is current and that no entires have been left uncleared, leaving machine in an unsafe condition for operation.

(4). For those items pointed out in the Daily Inspection requiring daily lubrication, refer to the Lubrication Chart (Figure 2-1), for specific requirements.

c. Perform the following checks and services before attempting to operate the machine.

WARNING

DO NOT OPERATE A MALFUNCTIONING MACHINE UNTIL CORRECTIVE MEASURES HAVE BEEN TAKEN AND ALL MALFUNCTIONS HAVE BEEN CORRECTED. USE OF A MALFUNCTIONING MACHINE IS A SAFETY VIOLATION.

(1). Visually inspect machine for loose or missing parts, foreign objects, hydraulic leaks for lines or components, and structural damage.

Note

Check boom limit switch for proper operation and security both visually and manually. Limit switch must shut down high engine and high drive speed when boom is raised above horizontal.

(2). Start each day with a full fuel tank. Fill to full mark on sight gauge. Check filler cap is closed and secure.

(3). Check oil level in engine crankcase. Fill to FULL mark on dipstick - DO NOT overfill. Ensure fill cap is securely in place.

(4). Check air passageways in engine hood and engine cooling fan for debris or other restrictions.

(5). Check battery for proper electrolyte level, cables for security, visible damage, and corrosion. Add only clean distilled water - DO NOT overfill. Check cell caps for security.

(6). Lubricate boom pivot pin, lift cylinder rod-end pin, and platform pivot pin. (Refer to Figure 2-1.)

(7). Check platform footswitch for proper operation. Switch must be released to start engine and depressed to operate machine.

(8). Check capacity indicator for correct operation, any damage and that decal is not defaced.

(9). Check that brakes activate and restrain machine with traveling controls in neutral-engine operating.

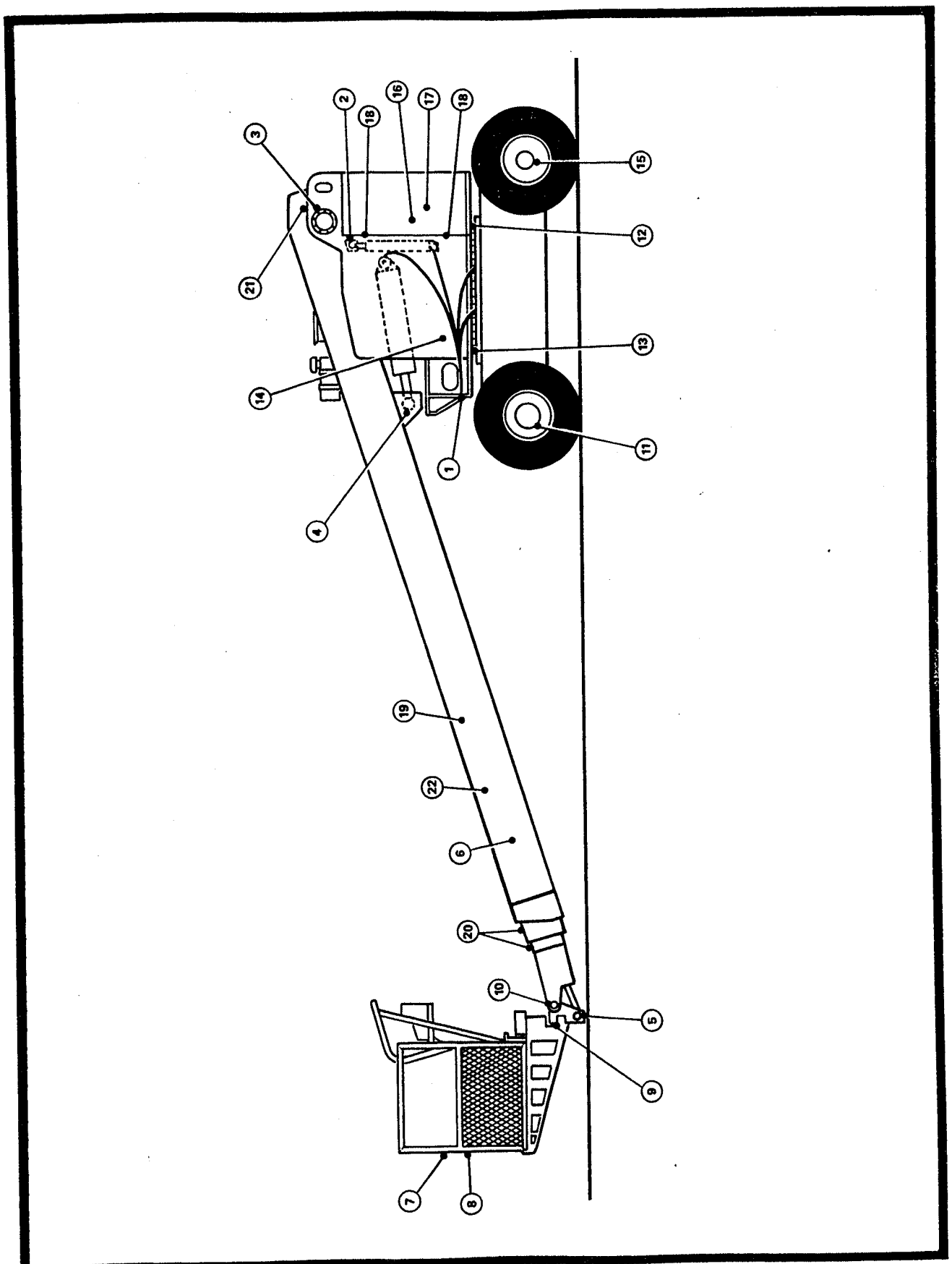


Figure 2-1. Lubrication Chart (Sheet 1 of 2)

INDEX NO.	COMPONENT	NUMBER/TYPE LUBE POINTS	LUBE & METHOD	INTERVAL (HOURS)
1	Master Leveling Cylinder (Base Shaft) - Remote Access	1 Grease Fitting	MPG - Pressure Gun	50
	Swing Bearing - Remote Access	2 Grease Fittings	MPG - Pressure Gun	100
	Lift Cylinder (Base Shaft) - Remote Access	1 Grease Fitting	MPG - Pressure Gun	50
2	Master Leveling Cylinder (Rod-End Bushing)	1 Grease Fitting	MPG - Pressure Gun	50
3	Boom Pivot Bearings	2 Grease Fittings	MoS_2 - Pressure Gun	10
4	Lift Cylinder (Rod-End Shaft) - Elevate Boom	2 Grease Fittings	MPG - Pressure Gun	10
5	Slave Leveling Cylinder (Rod-End Shaft)	1 Grease Fitting	MPG - Pressure Gun	50
6	Slave Leveling Cylinder (Base Shaft)	1 Grease Fitting	MPG - Pressure Gun	50
7	Platform Door Hinges	2 Grease Fittings	MPG - Pressure Gun	100
8	Platform Door Latch	N/A	SAE - 10 - Oil Can	100
9	Rotary Platform Control Stand (If Applicable)	2 Grease Fittings	MPG - Pressure Gun	100
10	Platform Attach Pin	1 Grease Fitting	MPG - Pressure Gun	10
11	Wheel Drive Hubs	Fill Plug	EPGL (SAE - 90)	500
12	Swing Bearing Gear	N/A	MPG - Brush	100
13	Speed Reducer Pinion	N/A	MPG - Brush	100
14	Speed Reducer (Turntable)	Fill Plug	EPGL (SAE - 90)	500
15	Steer Spindle	2 Grease Fittings	MPG - Pressure Gun	50
	Steer Cylinder (Barrel End)	1 Grease Fitting	MPG - Pressure Gun	50
	Steer Cylinder (Rod End)	1 Grease Fitting	MPG - Pressure Gun	50
	Wheel Bearings	N/A	MPG - (Repack)	500
16	Engine Crankcase	Fill Cap	EO (SAE - 30)	50
17	Engine Oil Filter	N/A	Replaceable Cartridge	50
18	Door and Access Panel Hinges	N/A	SAE - 10 - Oil Can	200
19	Boom Chains	N/A	SAE - 10 - Oil Bath	500
20	Wear Pad Travel Area	N/A	MPG - Brush	500
21	Boom Chain Retract Sheaves (Align with access hole in base boom.)	2 Grease Fittings	MPG - Pressure Gun	50
22	Boom Chain Extend Sheave (Align with access holes in fly and mid boom.)	1 Grease Fitting	MPG - Pressure Gun	50

Figure 2-1. Lubrication Chart (Sheet 2 of 2)

Key to Lubricants:

EPGL — Extreme Pressure Gear Lubricant
EO — Engine Oil
MoS_2 — Molybdenum Disulphide Dry Film Lubricant
MPG — Multi-Purpose Grease

(10). Check indicator on top of hydraulic oil filter with engine running for condition of element. Change element and clean magnets as required.

(11). With all systems shut down and machine in stowed or travel mode, check oil level in hydraulic reservoir, fill to FULL mark on sight gauge.

Note

On new machines, those recently overhauled, or after changing hydraulic oil, operate all systems a minimum of two complete cycles and recheck oil level in reservoir.

(12). Assure that all items requiring lubrication are serviced. Refer to Lubrication Chart for specific requirements.

(13). Refer to Torque Requirements and assure torques are complied with.

2-5. FUNCTIONAL CHECK.

A functional check of all systems, under no load, should be performed once the machine is ready for service from the ground control panel if possible. Perform Functional Check in accordance with the following procedure:

a. Drive forward and reverse; check for proper operation.

b. Steer left and right, check for proper operation.

c. If equipped, check rotator for smooth operation and assure platform will rotate 90 degrees in both directions from centerline of boom.

d. Raise, lower, and swing boom to LEFT and RIGHT a minimum of 45 degrees. (Cycle functions several times.) Check for smooth elevation and swing motion.

e. Telescope boom IN and OUT several cycles at various degrees of elevation lengths. Check for smooth telescope operation.

f. Check that platform automatic self-leveling system functions properly, during raising and lowering of boom.

g. Check platform level adjustment system for proper operation.

h. With the aid of an assistant to monitor tilt alarm indicator light on platform control console, manually activate indicator light by compressing one of the three tilt indicator mounting springs located between the turntable uprights. If light does not illuminate, shut down machine and contact a qualified service technician before continuing operation.

2-6. TORQUE REQUIREMENTS.

The Torque Chart (Figure 2-2) consists of standard torque values based on bolt diameter and grade, also specifying dry and wet torque values in accordance with recommended shop practices. This chart is provided as an aid to the operator in the event he/she notices a condition that requires prompt attention during the walk-around inspection or during operation until the proper service personnel can be notified. The Service and Maintenance manual provides specific torque values and periodic maintenance procedures with a listing of individual components. Utilizing this Torque Chart in conjunction with preventive maintenance section in the Service and Maintenance manual, will enhance safety, reliability, and performance of the machine.

SIZE		BOLT DIAMETER D (IN.)	TENSILE STRESS AREA (SQ. IN.)	SAE GRADE 5 BOLTS			SAE GRADE 8 BOLTS			RECOMMENDED TORQUE WRENCH SIZE (PRODUCTION)		
				CLAMP LOAD P (LB.)	TIGHTENING DRY K = 0.20	TORQUE LUB. K = 0.15	CLAMP LOAD P (LB.)	TIGHTENING DRY K = 0.20	TORQUE LUB. K = 0.15	IN-OZS.	IN-LBS.	FT-LBS.
					LB. IN.	LB. IN.		LB. IN.	LB. IN.			
4	40	0.1120	0.00604	380	8	6	540	12	9	160	10	
	48	0.1120	0.00661	420	9	7	600	13	10	160	10	
6	32	0.1380	0.00909	580	16	12	820	23	17		25	
	40	0.1380	0.01015	610	18	13	920	25	19		25	
8	32	0.1640	0.01400	900	30	22	1260	41	31		25	
	36	0.1640	0.01474	940	31	23	1320	43	32		25	
10	24	0.1900	0.01750	1120	43	32	1580	60	45		50	
	32	0.1900	0.02000	1285	49	36	1800	68	51		50	
1/4	20	0.2500	0.0318	2020	96	75	2860	144	108		100	
	28	0.2500	0.0364	2320	120	86	3280	168	120		200	
					LB. FT.	LB. FT.		LB. FT.	LB. FT.			
5/16	18	0.3125	0.0524	3340	17	13	4720	25	18		200	
	24	0.3125	0.0580	3700	19	14	5220	25	20		200	
3/8	16	0.3750	0.0775	4940	30	23	7000	45	35		300	25
	24	0.3750	0.0878	5600	35	25	7900	50	35		300	50
7/16	14	0.4375	0.1063	6800	50	35	9550	70	55		600	50
	20	0.4375	0.1187	7550	55	40	10700	80	60		600	50
1/2	13	0.5000	0.1419	9050	75	55	12750	110	80		1200	100
	20	0.5000	0.1599	10700	90	65	14400	120	90		1200	100
9/16	12	0.5625	0.1820	11600	110	80	16400	150	110		1200	100
	18	0.5625	0.2030	12950	120	90	18250	170	130		1200	100
5/8	11	0.6250	0.2260	14400	150	110	20350	220	170		1800	150
	18	0.6250	0.2560	16300	170	130	23000	240	180		1800	150
3/4	10	0.7500	0.3340	21300	260	200	30100	380	280		2400	200
	16	0.7500	0.3730	23800	300	220	33600	420	320		2400	200
7/8	9	0.8750	0.4620	29400	430	320	41600	600	460		3600	300
	14	0.8750	0.5090	32400	470	350	45800	660	500		3600	300
1	8	1.0000	0.6060	38600	640	480	51500	900	680		7200	600
	12	1.0000	0.6630	42200	700	530	59700	1000	740		7200	600
1 1/8	7	1.1250	0.7630	42300	800	600	68700	1280	960		7200	600
	12	1.1250	0.8560	47500	880	660	77000	1440	1080		7200	600
1 1/4	7	1.2500	0.9690	53800	1120	840	87200	1820	1360			Mult*
	12	1.2500	1.0730	59600	1240	920	96600	2000	1500			Mult*
1 3/8	6	1.3750	1.1550	64100	1460	1100	104000	2380	1780			
	12	1.3750	1.3150	73000	1680	1260	118100	2720	2040			
1 1/2	6	1.5000	1.4050	78000	1940	1460	126500	3160	2360			Mult*
	12	1.5000	1.5800	87700	2200	1640	142200	3560	2660			Mult*

NOTE: Tensile strength for bolt size 4 to 1 - 120,000 (min. psi), size 1 1/8 to 1 1/2 - 105,000 (min. psi).
*Torque multiplier. Torque specifications are usually given in foot-pounds - - - - lower ranges in inch-pounds or inch-ounces.


Grade 5


Grade 8

Figure 2-2. Torque Chart.

3-1. GENERAL.

This section provides the necessary information needed to understand control functions. Included in this section are the operating characteristics and limitations, and functions and purposes of controls and indicators. It is important that the user read and understand the proper procedures before operating the machine. These procedures will aid in obtaining maximum service life and safe operation.

WARNING

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICES IN THESE AREAS IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

3-2. PERSONNEL TRAINING.

a. The Aerial Lift Platform is a personnel handling device; therefore, it is essential that it be operated and maintained only by qualified personnel who have demonstrated that they understand the proper use and maintenance of the machine. It is important that all personnel who are assigned to and responsible for the operation and maintenance of this machine, undergo a thorough training program and checkout period in order to become familiar with the operating characteristics prior to operating the machine.

b. The initial phase of training should include a comprehensive study and understanding of manual, and supporting manuals. Actual operation of all functions, under simulated conditions, including emergency procedures,which may be encountered in actual use should be understood.

WARNING

MAKE NO ATTEMPT TO OPERATE MACHINE BEFORE FIRST, READING AND SECONDLY, UNDERSTANDING ALL SAFETY PRECAUTIONS CONTAINED IN SECTION 1 OF THIS MANUAL.

Note

Manufacturer or Dealer will provide qualified personnel for training assistance with first unit(s) delivered.

3-3. OPERATING CHARACTERISTICS AND LIMITATIONS.

a. General.

A thorough knowledge of the operating characteristics and limitation of the machine is always the first requirement for any user, regardless of user's prior experience with similiar types of equipment.

b. Control Placards.

Important points to remember during operation are provided at the control stations by DANGER, WARNING, CAUTION and INSTRUCTION placards. This important information is placed at various locations for the express purpose of alerting personnel of potential hazards constituted by the operating characteristics and load limitations of the machine. They are defined as follows:

DANGER and **WARNING:** An operating procedure, practice, which if not correctly followed, will result in personal injury.

CAUTION: An operating procedure, practice, which if not strictly observed, will result in damage to, or destruction of equipment.

INSTRUCTIONS: An operating procedure, condition, which is essential to proper operation.

c. Capacities and Stabilization.

All load capacity ratings of this equipment are based on the following criteria:

(1). Machine is positioned on a firm, level surface.

(2). All braking devices are engaged.

(3). Load is within manufacturer's rated design capacity, as indicated by capacity indicator.

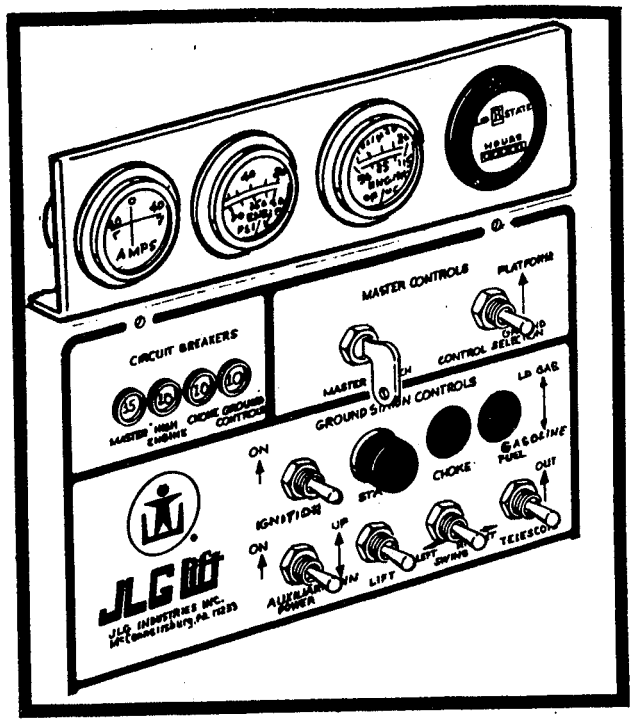


Figure 3-1. Ground Control Station

3-4. CONTROLS AND INDICATORS.

a. Ground Station. (Figure 3-1.)

WARNING

PERFORM PRE-OPERATIONAL CHECKS AND INSPECTIONS FROM THE GROUND STATION. WHEN PERSONNEL ARE IN THE PLATFORM, OPERATION OF THE BOOM WILL ONLY BE PERFORMED WITH THE PERMISSION OF THE PLATFORM USER.

CAUTION

WHEN THE MACHINE IS SHUT DOWN THE MASTER SWITCH MUST BE POSITIONED TO THE "OFF" POSITION TO PREVENT DRAINING THE BATTERY AND BURNING IGNITION POINTS.

(1). **Master Switch.**

A two-position key operated switch furnishes battery power to the platform or ground control switches when station power is selected from the ground control panel and the master switch is turned "ON".

(2). **Control Station Selector.**

A three-position PLATFORM/GROUND SELECT control switch supplies operating power to the controls on the platform control console, when positioned to PLATFORM. With the switch in GROUND position, power is shut-off to the controls at the platform station, and only the controls on the ground control panel are operable.

Note

With GROUND/PLATFORM SELECT control switch in center position, power is shut off to controls at both operating stations.

(3). **Ignition.**

The Model 60HT machines are equipped with an on-off ignition switch and a separate start push button switch on the ground control panel which supplies electrical power to the start solenoid when the ignition switch is placed in the ON position and the START button is depressed.

Note

LIFT, SWING, and TELESCOPE control switches are spring-loaded and will automatically return to neutral (off) when released.

WARNING

WHEN OPERATING THE BOOM ENSURE THERE ARE NO PERSONNEL AROUND OR UNDER PLATFORM.

(4). **Lift Control.**

A three-position LIFT control switch permits raising and lowering of the boom when positioned to UP or DOWN.

(5). **Swing Control.**

A three-position SWING control switch, provides 360 degrees continuous turntable rotation when positioned to RIGHT or LEFT.

(6). **Telescope Control.**

A three-position TELE control switch affords extension and retraction of the boom, when positioned to IN or OUT.

CAUTION

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT THE SAME TIME. SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR.

(7). **Auxiliary Power Control.**

A toggle-type AUXILIARY POWER control switch, on the ground control panel, energizes the electrically-operated auxiliary hydraulic pump, when actuated. (Switch must be held "on" for duration of auxiliary pump use.)

(8). **Glow Plug Switch.** (Deutz Diesel Engine Only)

This two-position (on-off) momentary contact toggle switch relays power to the glow plugs used to warm the air intake on cold start operations.

(9). **L.P. Gas/Gasoline Select Switch.**

An optional two position contact toggle switch supplies electrical power to open the gasoline shut-off solenoid and closes the L.P. Gas shut-off solenoid when positioned to "GASOLINE". This switch supplies electrical power to open the L.P. Gas shut-off solenoid and closes the gasoline shut-off solenoid when positioned to "L.P. GAS".

(10). **Circuit Breakers.**

Three reset push-button circuit breaker switches returns control power to the following functions when depressed.

(a). 35 AMP - Master

(b). 10 AMP - High Engine

(c). 10 AMP - Ground Controls

(11). **Hourmeter.**

An hourmeter, installed above the Ground Control box, records the engine operating time.

(12). **Ammeter.**

An ammeter, installed on a bracket mounted above the ground control box indicates the battery condition, i.e., charging, charged or discharging. (Ammeter pointed vertical indicates charged battery, with engine operating.)

(13.) **Oil Pressure Gauge.**

An oil pressure gauge, installed above the ground control box, provides an indication of the engine lubrication system pressure. Normal operating pressure at 2000 RPM is 40-60 PSI.

(14). **Temperature Gauge.**

A coolant temperature gauge is installed above the ground control box. The gauge provides a visual indication of an engine overheat condition.

b. Platform Station. (Figure 3-2.)

Note

For engine starting, the footswitch must be in the released (up) position. Footswitch must be actuated in order for controls to function.

(1). **Platform Footswitch.**

This is a design safety feature which must be depressed to allow operation of the platform controls. Releasing the switch disables all function except for the HORN, EMERGENCY STOP, CHOKE and START.

WARNING

NEVER REMOVE, MODIFY OR DISABLE THE FOOTSWITCH BY BLOCKING OR ANY OTHER MEANS.

(2). **Ignition/Emergency Stop.**

An on-off IGNITION/EMERGENCY STOP switch and a separate START push button on the platform console supplies electrical power to the starter solenoid, when the ignition switch is placed in the "ON" position and the START button is depressed. The on-off IGNITION/EMERGENCY STOP switch is protected by a guard which must be raised before the switch can be moved to the "ON" position. The guard permits easy movement of the switch to the OFF position in case of an emergency.

(3). **Engine Speed Control.**

A two-position ENGINE SPEED control switch affords the operator either high or low engine rpm as required for operation. When lifting boom, HIGH ENGINE will cut-out when boom lifts above horizontal.

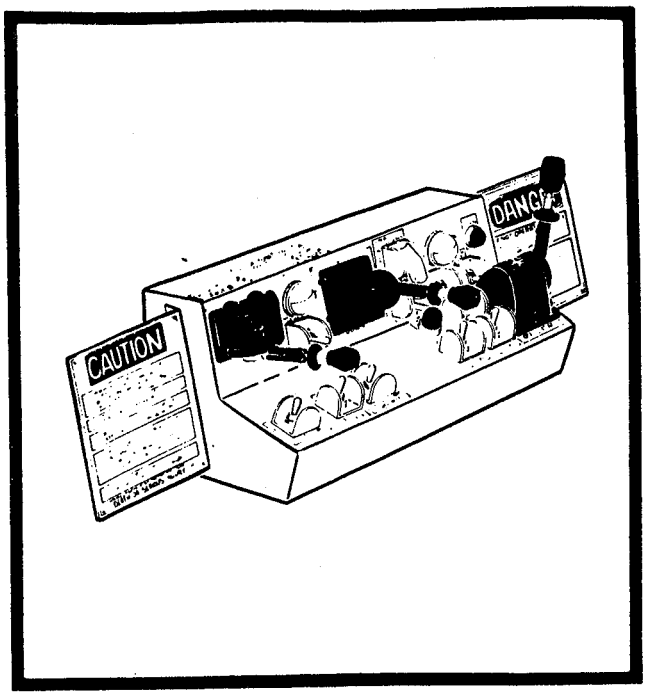


Figure 3-2. Platform Station.

(4). **Drive Speed Control.**

A two-position DRIVE SPEED control switch affords additional oil flow to the drive circuit when positioned to HIGH.

(5). **Two-Speed Drive Motor.**

A two-position TWO-SPEED DRIVE control switch shifts motor plates to high speed when positioned to HIGH.

Note

HIGH DRIVE SPEED, TWO SPEED DRIVE MOTOR and HIGH ENGINE SPEED are automatically cut out when boom is raised above horizontal.

(6). **Glow Plug.** (Diesel Engine Only)

An optional two-position (ON-OFF) momentary contact toggle switch relays power to the glow plugs used to warm the air intake on cold start operations.

WARNING

IF LIGHT IS ON WHEN BOOM IS RAISED OR EXTENDED, RETRACT AND LOWER BOOM TO BELOW HORIZONTAL, THEN REPOSITION MACHINE SO THAT IT IS LEVEL BEFORE EXTENDING BOOM OR RAISING BOOM ABOVE HORIZONTAL.

(7). **Tilt Alarm Warning Light.**

This red illuminator indicates that the chassis is on a severe slope. When this light is illuminated the operator should not swing, telescope, or raise the boom above horizontal. Drive machine with boom in stowed position only.

Note

LIFT, SWING, and TELESCOPE control levers are spring-loaded and will automatically return to neutral (off) when released.

(8). **Lift Control.**

The LIFT control lever permits raising and lowering of the boom when positioned to UP or DOWN, as desired.

(9). **Swing Control.**

The SWING control lever provides 360 degrees continuous swing when positioned to LEFT or RIGHT.

(10). **Telescope Control.**

A three-position TELE control switch affords extension and retraction of the boom, when positioned to IN or OUT.

Note

Platform LEVEL control switch is spring-loaded and will automatically return to neutral (off) when released.

(11). **Platform Leveling Control.**

A three-position LEVEL control switch allows the operator to compensate for any difference in the automatic self-leveling system by positioning the control to UP or DOWN, as required.

Note

The DRIVE control lever and STEER control switch are spring-loaded and will automatically return to neutral (off) when released.

(12). **Drive Control.**

The DRIVE control lever permits traveling the machine either forward or to the rear when positioned to FORWARD or REVERSE.

(13). **Steer Control.**

Positioning the STEER control switch RIGHT or LEFT enables steering the machine to the right or left respectively.

(14). **Travel Warning Horn.**

A button-type HORN switch supplies electrical power to an audible warning device when pressed.

CAUTION

WHEN OPERATING ON AUXILIARY POWER, DO NOT OPERATE MORE THAN ONE FUNCTION AT THE SAME TIME (SIMULTANEOUS OPERATION CAN OVERLOAD THE AUXILIARY PUMP MOTOR).

CAUTION

THE PRIMARY FUNCTION OF THE AUXILIARY POWER CONTROL IS TO PROVIDE AUXILIARY POWER TO LOWER THE PLATFORM. DETERMINE REASON FOR POWER FAILURE AND HAVE THE PROBLEM CORRECTED BY QUALIFIED PERSONNEL.

(15). **Auxiliary Power.**

A toggle-type AUXILIARY POWER control switch energizes the electrically-operated hydraulic pump, when actuated. (Switch must be held "on" for the duration of auxiliary pump use.)

(a). The auxiliary pump functions to provide sufficient oil flow to operate the basic machine system should the main pumps or engine fail during operation. The auxiliary pump enables the extension or retraction of the boom, lift and descent and swing left and right.

(b). It should be noted that the functions will operate at a slower than normal rate because of the lower gpm delivered.

(16). **Capacity Indicator.**

The capacity indicator gauge is visible through a lens located on the left side of the control console. This gauge indicates the maximum platform load allowable at any given boom angle and extension based on the color stripe visible at the point where the fly boom enters the mid boom.

4-1. GENERAL.

This section provides the necessary information needed to operate the machine. Included in this section are the procedures for starting, stopping, traveling, steering, parking, platform loading, swinging, telescope, and lift. It is important that the user read and understand the proper procedures before operating the machine.

WARNING

SINCE THE MANUFACTURER HAS NO DIRECT CONTROL OVER MACHINE APPLICATION AND OPERATION, CONFORMANCE WITH GOOD SAFETY PRACTICE IN THIS AREA IS THE RESPONSIBILITY OF THE USER AND HIS OPERATING PERSONNEL.

4-2. ENGINE OPERATION.

Note

Initial starting should always be performed from the Ground Control.

a. Starting Procedure.

(1). Check engine oil before attempting to start engine, if necessary, add oil in accordance with Engine Manufacturer's Manual.

CAUTION

IF ENGINE FAILS TO START PROMPTLY, DO NOT CRANK FOR AN EXTENDED PERIOD. SHOULD ENGINE FAIL TO START ONCE AGAIN ALLOW STARTER TO "COOL OFF" FOR 2 TO 3 MINUTES. IF ENGINE FAILS AFTER SEVERAL ATTEMPTS REFER TO ENGINE MAINTENANCE MANUAL.

(2). Place ENGINE SPEED control switch on platform control console to the OFF position.

Note

Footswitch must be in released (pedal up) position before starter will operate. If starter operates with footswitch in the depressed position, DO NOT OPERATE MACHINE.

(3). Position IGNITION/EMERGENCY STOP switch to ON and depress START button and hold until engine starts.

(4). Check engine amp meter, water temp and oil pressure gauges when starting engine and monitor gauges periodically during operation.

CAUTION

ALLOW ENGINE TO WARM UP FOR A FEW MINUTES AT LOW SPEED BEFORE APPLYING ANY LOAD.

(5). After engine has had sufficient time to warm up, position ENGINE SPEED control switch to desired setting.

b. Shutdown Procedure.

CAUTION

IF AN ENGINE MALFUNCTION NECESSITATES UNSCHEDULED SHUTDOWN, DETERMINE AND CORRECT CAUSE BEFORE RESUMING ANY OPERATION.

(1). Position ENGINE SPEED control switch on platform control console to LOW.

(2). Remove all load and allow engine to operate at low speed setting for 3 to 5 minutes; this allows for faster reduction of internal engine temperature.

(3). Position IGNITION/EMERGENCY STOP switch to off.

Note

Refer to Engine Manufacturer's manual for detailed information.

4-3. TRAVELING (DRIVING).

WARNING

AVOID HOLES, ROCKS, SOFT SURFACES, OR ANY SIMILAR OBSTACLES WHICH COULD CAUSE MACHINE INSTABILITY.

ASSURE THAT TURNTABLE LOCK IS ENGAGED BEFORE BEGINNING ANY EXTENDED TRAVELING.

TRAVEL GRADES IN LOW DRIVE, HIGH ENGINE ONLY.

BEFORE DRIVING, DETERMINE DIRECTION OF TURNTABLE. IF ROTATED 180 DEGREES, FROM THE NORMAL OPERATING POSITION (BOOM OVER DRIVE WHEELS), THE DIRECTION OF PLATFORM TRAVEL REVERSES IN RELATION TO CONTROL MOTION.

CAUTION

IF UNIT BECOMES STUCK DURING TRAVEL, DO NOT "ROCK" IN AN ATTEMPT TO REGAIN TRACTION AS DAMAGE TO HUBS MAY RESULT.

a. Traveling Forward.

(1). If machine is shut down, start engine and allow warm-up period before beginning any travel.

(2). Position TWO SPEED DRIVE MOTOR, DRIVE SPEED and ENGINE SPEED control switches to desired positions (HIGH or LOW).

Note

It is recommended that when using two speed drive motor, first place engine speed control to high, next place drive speed control to high. Slowly move drive control lever forward, while machine is in motion, position two speed drive motor control to high for extended travel.

(3). For forward travel, DRIVE control lever is positioned to FORWARD position and held for duration of desired travel.

b. Traveling in Reverse.

WARNING

TRAVELING IN REVERSE IS TO BE USED ONLY FOR ADDED JOB SITE MOBILITY.

(1). Traveling the machine in reverse is accomplished in the same manner as traveling forward, with the exception of positioning the control lever to REVERSE. (See Traveling Forward.)

4-4. STEERING.

To steer machine, STEER control switch is positioned to RIGHT for traveling right, or to LEFT for traveling left.

4-5. PARKING AND STOWING.

Park and stow machine as follows:

a. Park machine in travel position; boom lowered over rear, all access panels and doors closed and secured, and ignition off; lock turntable.

b. Check that brakes hold machine in position.

c. Chock wheels at front and rear.

d. Turn off master switch and remove key.

WARNING

BEFORE LEAVING MACHINE, ASSURE THAT TURNTABLE LOCK PIN IS ENGAGED.

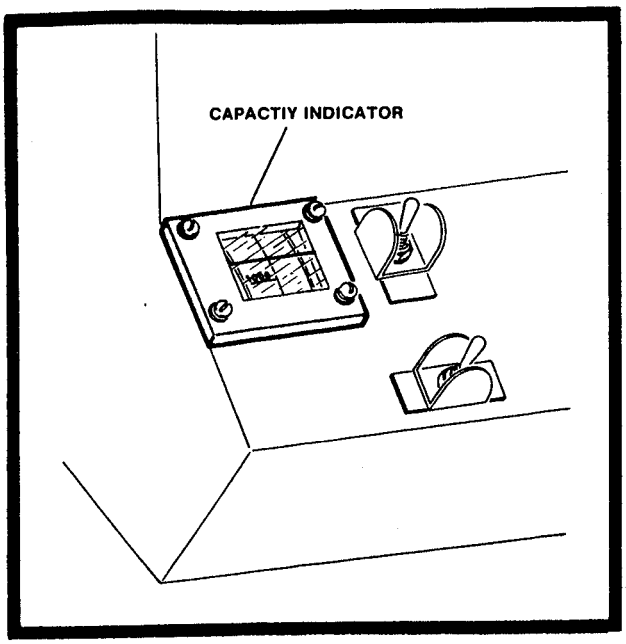


Figure 4-1. Capacity Indicator.

4-6. PLATFORM.

a. Loading.

(1). The platform maximum rated capacity is shown on the capacity indicator. Platform loading must be done only when the machine is positioned on a firm uniform and level surface.

(2). It is recommended when additional weight is to be added in an elevated and extended mode that the boom be positioned to a maximum elevation prior to loading. When additional weight is to be added in a less fully elevated mode, the boom must be fully retracted and then extended only when the boom is fully elevated. Always ensure that maximum capacity as shown on capacity indicator is not exceeded. (See Figure 4-1.)

(3). All standard production models for the 60HT will incorporate a new design capacity indicator. This new design capacity indicator performs the same function as the prior design; that of indicating to the user the maximum allowable load in accordance with the elevation and extension of the boom. When the boom is raised, a cable with one end attached to the fly section of the boom and the opposite end attached to a pulley in the platform control box, serves to move a color-coded capacity gauge visible through a lens in the control box. By using this reading in conjunction with the appropriately colored extension tape visible at the point where the fly section enters the base section of the boom, the operator will be provided with the maximum allowable platform load for that particular boom extension and boom elevation angle.

b. Platform Level Adjustment.

(1). Leveling UP. To raise platform, LEVEL control switch is positioned to UP and held until level attitude is attained.

(2). Leveling DOWN. To lower platform, LEVEL control switch is positioned to DOWN and held until level attitude is attained.

4-7. BOOM.

WARNING

A RED WARNING LIGHT LOCATED ON THE PLATFORM CONTROL CONSOLE INDICATES THAT THE MACHINE CHASSIS IS NOT LEVEL. WHEN THIS CONDITION EXISTS THE OPERATOR MUST NOT SWING, TELESCOPE OR RAISE THE BOOM ABOVE HORIZONTAL.

a. Swinging the Boom.

WARNING

BEFORE SWINGING BOOM, ASSURE THAT AREAS IN SWING PATH OF PLATFORM AND BOOM ARE CLEAR OF OBSTRUCTIONS AND PERSONNEL.

CAUTION

ASSURE THAT TURNTABLE LOCK PIN IS DISENGAGED BEFORE STARTING ANY SWING OPERATION.

To swing boom, SWING control lever is positioned to RIGHT or LEFT for direction desired.

b. Raising and Lowering the Boom.

WARNING

BEFORE RAISING BOOM, ASSURE THAT AREAS ABOVE AND UNDER BOOM AND PLATFORM ARE CLEAR OF ALL OBSTRUCTIONS AND PERSONNEL.

(1). **Raising the Boom.**

To raise the boom, LIFT control lever is placed to the UP position and held until desired height is reached.

WARNING

BEFORE LOWERING THE BOOM, ASSURE THAT AREAS UNDER BOOM AND PLATFORM ARE CLEAR OF ALL OBSTRUCTIONS AND PERSONNEL.

(2). **Lowering the Boom.**

To lower boom, LIFT control lever is placed to the DOWN position and held until desired height is reached.

c. Telescoping the Boom.

WARNING

BEFORE EXTENDING BOOM, ASSURE THAT AREA AHEAD OF PLATFORM IS CLEAR OF ALL OBSTRUCTIONS AND PERSONNEL.

(1). **Extending the Boom.**

To extend boom, TELESCOPE control switch is positioned to OUT and held until platform reaches desired position.

(2). **Retracting the Boom.**

To retract boom, TELESCOPE control switch is positioned to IN and held until platform reaches desired position.

4-8. TIE DOWN AND LIFTING.

a. Tie Down.

When transporting, machine must be in the stowed mode with turntable lock pin engaged and machine securely tied down to truck or trailer deck. Four tie down eyes are provided in the frame slabs, one at each corner of machine.

b. Lifting.

If it becomes necessary to lift the machine using an overhead or mobile crane it is very important that the lifting devices are attached only to the designated lifting eyes.

Note

Crane and lifting devices, chains, slings, etc., must be capable of handling at least 35,000 lbs.

Two lifting eyes are provided at the front of machine, one on each turntable sideplate, next to boom pivot. Two lifting eyes are also provided at the rear of machine in the frame slabs. The two rear lifting eyes are also used for machine tie down. Each of the four chains or slings used for lifting machine must be adjusted individually so machine remains level when elevated.

5-1. ROTATOR.

A momentary three-position toggle switch located on the platform control console allows for platform rotation 90 degrees from center in both right and left direction. The rotator is designed to give added jobsite versatility and the platform should be returned to the center position for all other operations.

5-2. TRAVEL ALARM.

A 12-volt travel alarm horn, mounted on a bracket attached to the right turntable sideplate, provides an audible warning of the machines movement in the drive forward or the drive reverse mode.

5-3. CYLINDER BELLOWS.

A one piece accordian shaped rubber bellow may be attached to the rod end of the cylinder barrel and to the cylinder rod as close to the rod attach bushing as possible. The bellows afford protection to the cylinder rod in either the extended or retracted position. The bellows are installed on the lift cylinder, slave cylinder, master cylinder and steer cylinder.

5-4. BOOM WIPERS.

A one piece u-shaped neoprene strip may be attached to the front of the base boom section which wipes the top and both sides of the fly section. The bottom side of the fly section is protected by a straight neoprene strip which may also attach to the base section.

6-1. GENERAL.

This section provides information on the procedures to be followed and on the systems and controls to be used in the event an emergency situation is encountered during machine operation. Prior to operation of the machine and periodically thereafter, the entire operating manual, including this section, should be reviewed by all personnel whose responsibilities include any work or contact with the machine.

6-2. THE EMERGENCY CONTROLS AND THEIR LOCATIONS.

a. Emergency Stop Switch Guard.

This guard is installed directly over the on-off ignition switch located on the platform console panel. When the guard is depressed it will immediately stop the machine.

WARNING

CHECK MACHINE DAILY TO MAKE SURE EMERGENCY STOP SWITCH GUARD IS IN PLACE AND THAT GROUND CONTROL AND MANUAL LOWERING VALVE INSTRUCTIONS ARE IN PLACE AND LEGIBLE.

b. Ground Control Panel.

The ground control panel is located at the left side of the turntable. The controls on this panel provide the means for overriding the platform controls and for controlling the boom lift, swing and telescope functions from the ground. Place the station select switch in **GROUND** position and operate the proper switch to lift, swing or telescope.

c. Manual Descent and Retraction. (Figure 6-1.)

The manual descent valves are located at the left of the turntable (directly below the ground control box). They should be used if there is a total power failure since the valves will permit use of gravity to retract and lower the boom. The procedures for use of the valves for descent and retraction are given adjacent to the valves.

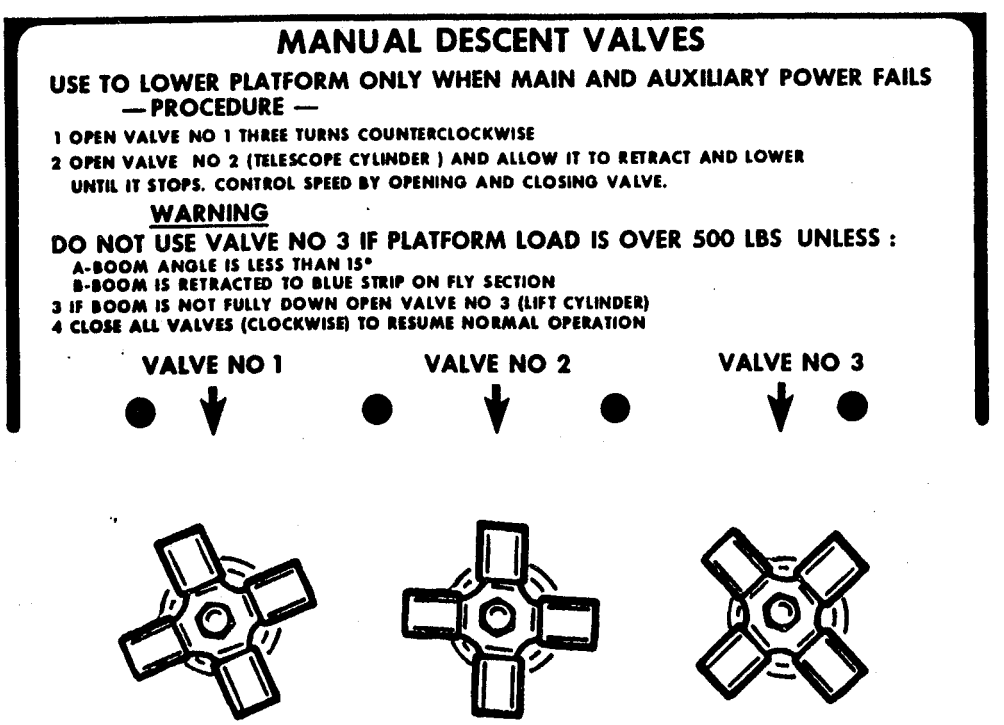


Figure 6-1. Manual Descent Valves

6-3. EMERGENCY PROCEDURES.

a. KNOW HOW TO USE THE GROUND CONTROLS IN AN EMERGENCY SITUATION.

Ground personnel must be thoroughly familiar with the machine operating characteristics and the ground control functions. Training should include operation of the machine, review and understanding of this section and hands-on operation of the controls in simulated emergencies.

b. IF THE PLATFORM OPERATOR IS PINNED, TRAPPED OR UNABLE TO OPERATE OR CONTROL THE MACHINE.

(1). Operate the machine from ground controls **ONLY** with the assistance of other personnel and equipment (cranes, overhead hoists, etc.) as may be required to safely remove the danger or emergency condition.

(2). Other personnel on the platform may use the platform controls with regular or auxiliary power. **DO NOT CONTINUE OPERATION IF CONTROLS DO NOT FUNCTION NORMALLY.**

(3). Use the **MANUAL DESCENT SYSTEM AS FIRST CHOICE** for bringing the platform and operator down, particularly **IF THERE IS INDICATION OF CONTROL MALFUNCTION.** Further use of hydraulic power may cause more severe injury or death.

(4). Cranes, forklift trucks or other equipment which may be available should be used to remove platform occupants and stabilize motion of the machine in case machine controls are inadequate or malfunction when used.

c. IF THE PLATFORM OR BOOM IS CAUGHT OR SNAGGED.

If the platform or boom becomes jammed or snagged in overhead structures or equipment, do not continue operation of the machine from either the platform or the ground until the operator and all personnel are safely moved to a secure location. Only then should an attempt be made to free the platform using any necessary equipment and personnel. Do not operate controls to cause one or more wheels to leave the ground.

d. IF THE MACHINE BECOMES UNSTABLE OR STARTS TO TIP.

If it appears that the machine is becoming unstable and on the verge of tipping, the extent of injury can be greatly reduced or eliminated if the operator stays in the platform with safety belt attached. Platform descent speed in a tipping situation is always less than free fall.

e. RIGHTING OF TIPPED MACHINE.

No attempt should be made to right the machine using platform control. A forktruck of suitable capacity or equivalent equipment may be placed under the elevated side of the chassis and the manual descent valve opened to permit lowering chassis without elevating platform. A crane or other lifting equipment may also be used to lift the platform while the chassis is lowered by a forktruck, jacks or other means. Remove all personnel and equipment from the area before starting operation.

f. Following any accident, thoroughly inspect the machine and test all functions first from the ground controls, then from the platform controls. Do not lift above ten (10) feet until you are sure that all damage has been repaired, if required, and that all controls are operating correctly.

6-4. INCIDENT NOTIFICATIONS.

a. It is imperative that JLG Industries, Inc. is notified immediately of any incident involving a JLG product. Even if no injury or property damage is evident, the Safety Engineering Department at the factory should be contacted by telephone and provided with all necessary details.

b. It should be noted that failure to notify the Manufacturer of an incident involving a JLG Industries product within 48 hours of such an occurence may void any warranty consideration on that particular machine.

JLG Industries, Inc.

TRANSFER OF OWNERSHIP

To: JLG, Gradall, Lull and Sky Trak product owner:

If you now own, but ARE NOT the original purchaser of the product covered by this manual, we would like to know who you are. For the purpose of receiving safety-related bulletins, it is very important to keep JLG Industries, Inc. updated with the current ownership of all JLG products. JLG maintains owner information for each JLG product and uses this information in cases where owner notification is necessary.

Please use this form to provide JLG with updated information with regard to the current ownership of JLG Products. Please return completed form to the JLG Product Safety & Reliability Department via facsimile (717) 485-6573 or mail to address as specified on the back of this form.

Thank you,
Product Safety & Reliability Department
JLG Industries, Inc.
1 JLG Drive
McConnellsburg, PA 17233-9533
Telephone: (717) 485-5161
Fax: (717) 485-6573

NOTE: Leased or rented units should not be included on this form.

Mfg. Model: _____

Serial Number: _____

Previous Owner: _____

Address: _____

City: _____ State: _____

Zip: _____ Telephone: (_____) _____

Date Of Transfer: _____

Current Owner: _____

Address: _____

City: _____ State: _____

Zip: _____ Telephone: (_____) _____

Who in your organization should we notify?

Name: _____

Title: _____

Please cut on the dotted line and fax to 717-485-6573

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