REEDRILL™

Part No. 401937

Operator & Maintenanace Manual 700/800 Series Auger Drill

Reedrill
3501 S. FM Highway 1417, Denison, Texas 75020 P.O. Box 998, Sherman, Texas 75091-0998

Parts Ordering and Product Support

REEDRILL™
The equipment–and the people–you trust

Use only genuine Reedrill parts in the maintenance, rebuild, or repair, of Reedrill machines. Reedrill shall have no liability as to any unauthorized modification of machines or parts and shall have no obligation or liability as to any machines or parts which have been improperly handled, or which have not been operated, maintained, or repaired according to Reedrill's furnished manuals, or other written instructions, or which are operated with other than genuine Reedrill parts.

Your cooperation in furnishing as much information as possible will assist us in filling your orders correctly and in the shortest possible time.

1. IDENTIFICATION OF THE MACHINE

Always furnish the **Reedrill** Model Number and Serial Number when ordering parts. This information is found on the machine nameplate. Rock Drills have the serial number stamped on the cylinder.

2. PART NUMBER AND DESCRIPTION

In addition to the Serial Number, always give the part number and description of each part ordered. If there is any doubt as to the correct part number and description, furnish a dimensioned sketch or return the part to be replaced, transportation charges prepaid.

3. SHIPMENT

Unless otherwise instructed, all shipments will be made via motor freight collect or **UPS** prepaid and charged on our invoice. Shipments cannot be made on open account until your credit has been approved by our Accounting Department.

MAILING ADDRESS
Reedrill
P. O. Box 998
Sherman, TX. 75091-0998

SHIPPING ADDRESS
Reedrill
3501 S. FM Hwy 1417
Denison, TX. 75020

FOR PARTS ORDER ENTRY
In North America, Telephone 1-800-854-9030
or Telefax 1-800-582-6570
Telephone (903) 786-2981
Telefax (903) 786-6407

FOR PRODUCT SERVICE & WARRANTY
In North America, Telephone 1-800-258-0009
Telephone (903) 786-2981
Telefax (903) 786-6408

Introduction

Machine Records

Fill in the information below, upon receipt of machine. This will provide ready reference when calling the factory for technical support or parts ordering information.

MODEL: _____

SERIAL NO.: _____

DATE DRILL DELIVERED: _____

DEALER: _____

CUSTOMER: _____

ENGINE AIR FILTER _____

ENGINE OIL FILTER _____

ENGINE FUEL FILTER _____

HYDRAULIC OIL FILTER _____

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General Locator

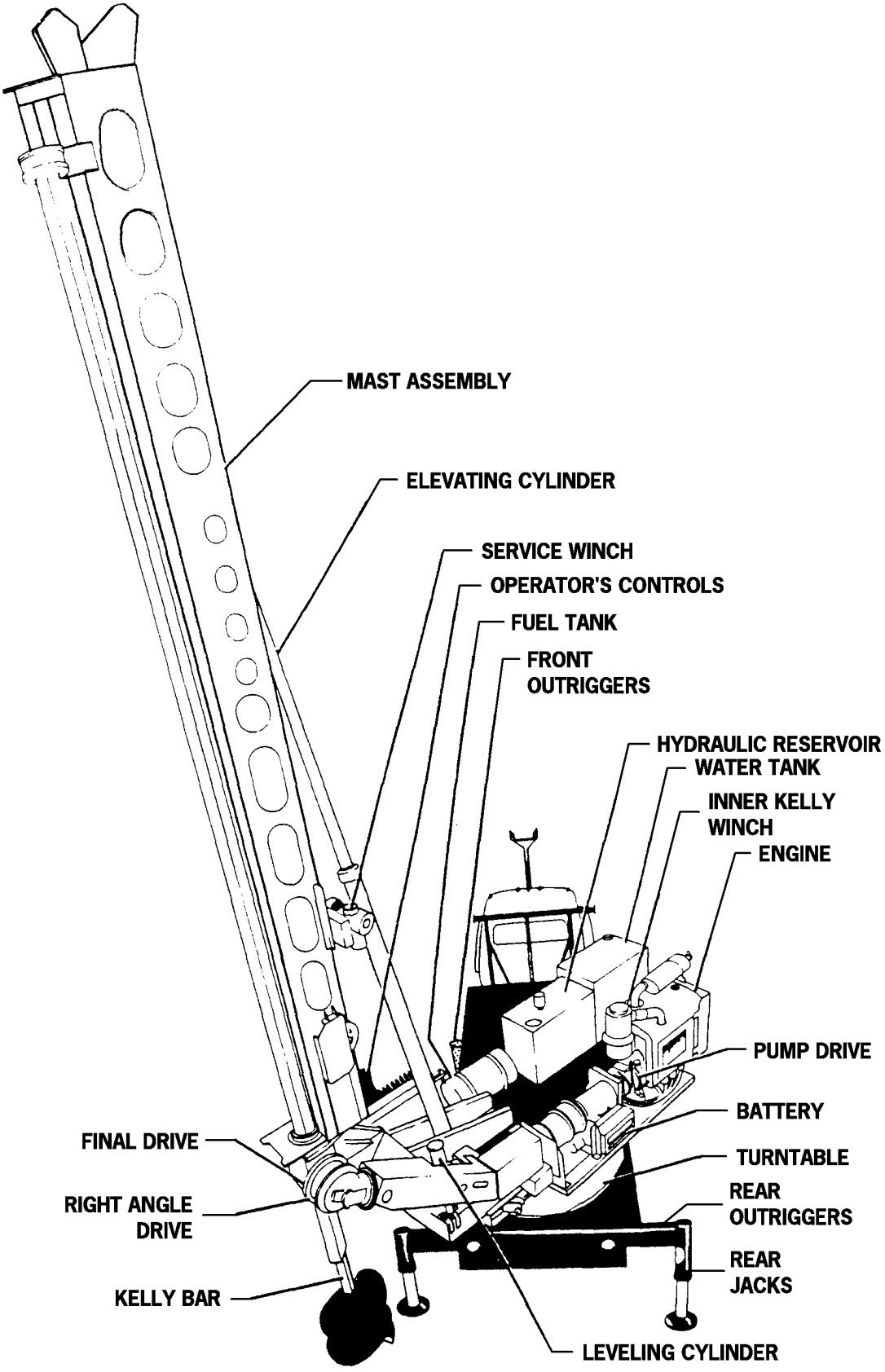

Fig. I-1 General Locator - 700/800 Truck Mounted Machine
Track Mounted Machines do not have jacks or outriggers, otherwise components are the same.

Section 1

Safety

In this section and those that follow, the word:

DANGER means that severe injury or death will result from failure to follow instruction.
WARNING means that severe injury or death can result from failure to follow instruction.
CAUTION means that minor injury or property damage can result from failure to follow instructions.

NOTE means that special attention should be given to the instruction.

Overview of Potential Hazards

The **Auger Drill** is a heavy moving machine with a mast capable of extending its reach vertically and horizontally. Like all moving objects and reach extending devices, there are **potential** hazards associated with its use. These hazards will be minimized if the machine is properly inspected and maintained. The operators should read this manual and have been trained to use the machine in an appropriate and safe manner. Should any questions arise concerning the maintenance or operation of the machine contact **Reedrill at 1-800-258-0009**.

In this section and those that follow, the word:

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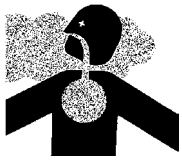
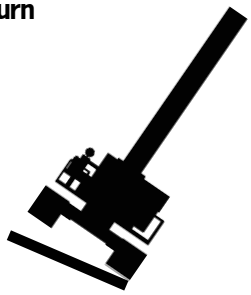
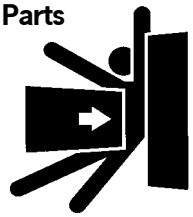
NOTE means that special attention should be given to the instruction.

POTENTIAL HAZARD	EFFECT	PREVENTION
Electrical Contact 	**DANGER:** Will cause Serious Injury or Death.	Maintain minimum clearance from high voltage power lines. Refer to "Minimum Clearance for High Voltage Lines" chart in this section. Do Not dig near underground power lines. Machine is NOT insulated
Contaminated Air 	**DANGER: WILL** cause Serious Injury or Death.	Do Not run machine in an area without good ventilation.
Unit Overturn 	**WARNING:** Can Cause Serious Injury or Death.	Do Not travel on steep inclines or crosswise to grades. Do Not travel on soft or unstable ground or close to unsupported excavations. Do Not move machine with mast raised. Always extend jacks and outriggers on truck mounted machines before using auger. Always place auger on ground when lifting a load with the winch.
Moving Load or Parts 	**WARNING:** Can Cause Serious Injury or Death.	Do Not unstow, move or stow auger until all people are clear of the area. Keep all personnel at least 15 ft. (4.6 m) from the Kelly Bar when it is operating. Do Not lubricate or service while machine is running.
High Pressure Air or Fluid 	**WARNING:** Can Cause Serious Injury or Death.	Relieve pressure on hydraulic and pneumatic systems before loosening hoses or connections.

Before Operation

- **Do** notify the owner of overhead or underground power lines before digging. Be sure to comply with all local regulations regarding safe operating distances from power lines.
- **Do** study this manual and fully understand the controls.
- **Do** be sure all safety guards are securely in place.
- **Do** be sure all nameplates and decals pertaining to safety, operation, and maintenance are in place and not damaged. Replace any damaged or missing nameplates or decals.
- **Do** wear safety helmet and glasses when operating or working on machine.
- **Do** be sure all personnel are clear of the machine and work area before starting the engine or operating the machine.
- **Do** maintain metal to metal contact between fuel tank and fuel nozzle when filling fuel tank. This will prevent static sparks and the possibility of fire and explosion.
- **Do** keep the area within 15 feet of the Kelly Bar clear of personnel.
- **Do** attach safety chain when using towbar.
- **Do Not** leave tools or other loose objects on the engine compartment or drive mechanisms. They can be thrown with a powerful force.
- **Do Not** operate machine with:
  - A hydraulic leak
  - Damaged hydraulic hoses or fittings
  - Broken or damaged electrical wiring
  - Damaged or missing guards and shields

Operation

- **Do maintain minimum clearance from high voltage wires (see chart in this section).** Check with power company and local regulations for specific guidelines and safety information.
- **Do** provide sufficient ventilation when running the engine in an enclosed area. Exhaust gases contain carbon monoxide, a deadly poison, which is colorless and odorless.
- **Do** Keep work area clean and clear of mud, snow, ice, hand tools and other objects.
- **Do** engage brake systems before leaving the machine for any reason.
- **Do** be sure the feed ram (mast) is vertical from side to side with respect to the machine before lowering. Lower slowly to be sure feed ram (mast) will clear other parts of the machine and fit correctly in the feed ram (mast) rest.
- **Do Not** wear loose clothing or jewelry; keep clothing and hands clear of moving parts.
- **Do Not** travel on steep inclines, soft or unstable ground, or close to unsupported excavations.
- **Do Not** move machine if it is in a potentially unstable position.
- **Do Not** move the machine with the Feed Ram (mast) raised. Always lower the Feed Ram and raise the jacks before moving the machine.
- **Do Not** drill near a "bootleg" hole or any hole that may contain explosives.
- **Do Not** attempt to dig unless the jacks are firmly placed and set on a hard surface to eliminate the possibility of turning the truck and digger over.

Operation (con't.)

- **Do Not** attempt to move the machine with a load suspended from the winch line. Always keep the Feed Ram vertical and the auger on the ground when lifting a load. Do not swing with a suspended load. Failure to heed this warning may cause serious damage and/or personnel injuries.

Clearances from High Voltage Lines	
Voltage	**Minimum Clearance**
up to 50 kv	10 ft. (3 m)
over 50 to 75 kv	11 ft. (3.4 m)
over 75 to 125 kv	13 ft. (4 m)
over 125 to 175 kv	15 ft. (4.6 m)
over 175 to 250 kv	17 ft. (5.2 m)
over 250 to 370 kv	21 ft. (6.4 m)
over 370 to 550 kv	27 ft. (8.2 m)
over 550 to 1000 kv	42 ft. (12.8 m)

Table 1-1 Minimum safe distances from high voltage lines.

After Operation

- **Do** be sure machine is on level ground and all controls are in the NEUTRAL or OFF position.
- **Do** let engine idle for 3 - 5 minutes before shutting off engine.
- **Do** be sure the jacks and outriggers (if equipped) are retracted before moving the truck.

Maintenance

- **Do** be sure machine and components are well supported before servicing or replacing parts.
- **Do** relieve pressure on hydraulic or pneumatic systems before loosening connections or parts.
- **Do** use only proper tools to make repairs or adjustments.
- **Do Not** service, or perform maintenance while machine is running.
- **Do Not** weld or grind near oil lines.
- **Do Not** smoke or use an open flame near batteries. Batteries can give off hydrogen which is a highly explosive gas.

Equipment Transfer

If all or part of the equipment is shipped to a new destination, always include a complete Operator's Manual or copy of the following topics from the Operator's Manual:

- Safety Section
- Pre-Start Checklist, engine start and shutdown procedures.
- Operating controls for auger drill and truck owners manual.

Section 2

Pre-Start

Pre-Start Checklist

Daily Checks - Before Start-Up

(Refer to section 4 lubrication diagram and chart.)

1. Check oil level in the drill engine.
2. Check coolant / anti-freeze level in drill engine radiator.
3. Check oil level in the drill transmission, after engine has been warmed up.
4. Grease drive lines.
5. Grease rollers on bottom of final drive.
6. Grease all sheaves on mast assembly.
7. Grease turntable bearing - 2 each both sides of subframe.
8. Check drill tools (auger) everyday before production drilling begins. (Pilot bits, teeth, augers, pins)

NOTE **Everyday before drilling, after the drill engine has reached normal operating temperature, place the transmission gear selector in 1st gear, letting the kelly bar rotate freely, making sure the drive train does not freeze up between shifts. Always keep extra shear pins with each unit.**

Weekly Checks

(Refer to section 4 adjustments, lubrication diagram and chart.)

1. Check tension on crowd cable and tighten if necessary.
2. Check inner kelly cable for wear and damage. (Loose wires, smashed, frayed spots)
3. Check oil level on right angle drive - plug level.
4. Check oil level on final drive - plug level.
5. Check tension on track assembly - left and right.
6. Hydraulic filters in the hydraulic oil tank to be changed every 250 hours.

Section 3

Operating Procedures

Start-up / Shutdown Procedures

DANGER:
LOOK UP before raising mast.
DO NOT allow mast to come near electrical power lines.
See Minimum Clearance Chart of Energized High Voltage Lines in section 1. This machine is not insulated.

WARNING:
DO NOT operate machine before you have read and understood all warnings and cautions listed in section 1 of this manual.
CHECK for obstructions before moving machine.
DO NOT attempt lubrication or service while the machine is running.

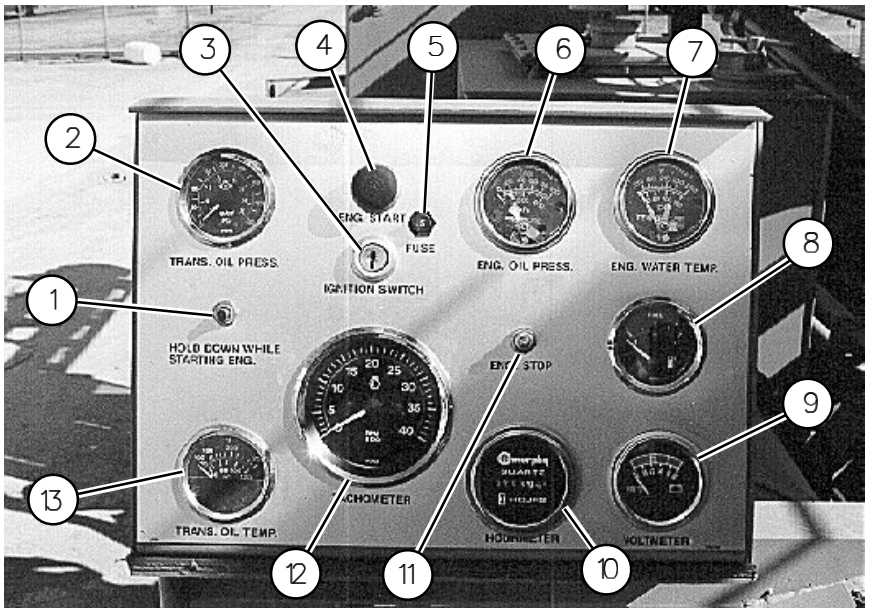


Fig. 3-1 Instrument Panel

Item	Description
1	Low Engine Oil Pressure Override Switch
2	Transmission Oil Pressure Gauge
3	Ignition Switch
4	Engine Start
5	Fuse
6	Engine Oil Pressure Gauge
7	Engine Water Temperature Gauge
8	Fuel Gauge
9	Voltmeter
10	Hourmeter
11	Engine Stop
12	Tachometer
13	Transmission Oil Temperature Gauge

Start-up Procedure

1. Complete the Pre-start checklist in section 2 BEFORE starting machine.
2. Be sure all controls are in the OFF or NEUTRAL position and parking brake is set on truck mounted machines.
3. Turn IGNITION SWITCH (3) to ON position.
4. Press and hold LOW ENGINE OIL PRESSURE OVERRIDE SWITCH (1) while pressing ENGINE START BUTTON (4). When engine starts, release start button, continue to hold override switch in until oil pressure builds up so engine will keep running when override switch is released.

NOTE **If engine fails to start within 5 seconds of cranking, follow cold start procedures below.**

Cold Start Procedure

CAUTION:
DO NOT engage the starting motor more than 30 seconds. Wait two minutes between each attempt to start, to prevent damage to stating motor.

- Consult engine operator manual for specific instructions regarding cold weather staring procedures and troubleshooting.
- If engine does not start after three attempts, check the fuel supply system. Absence of blue or white exhaust smoke during cranking indicates no fuel is being delivered.
- After engine starts, be sure engine oil pressure is indicated on gauge.
- Use the chart below as a guide for cold weather operation.

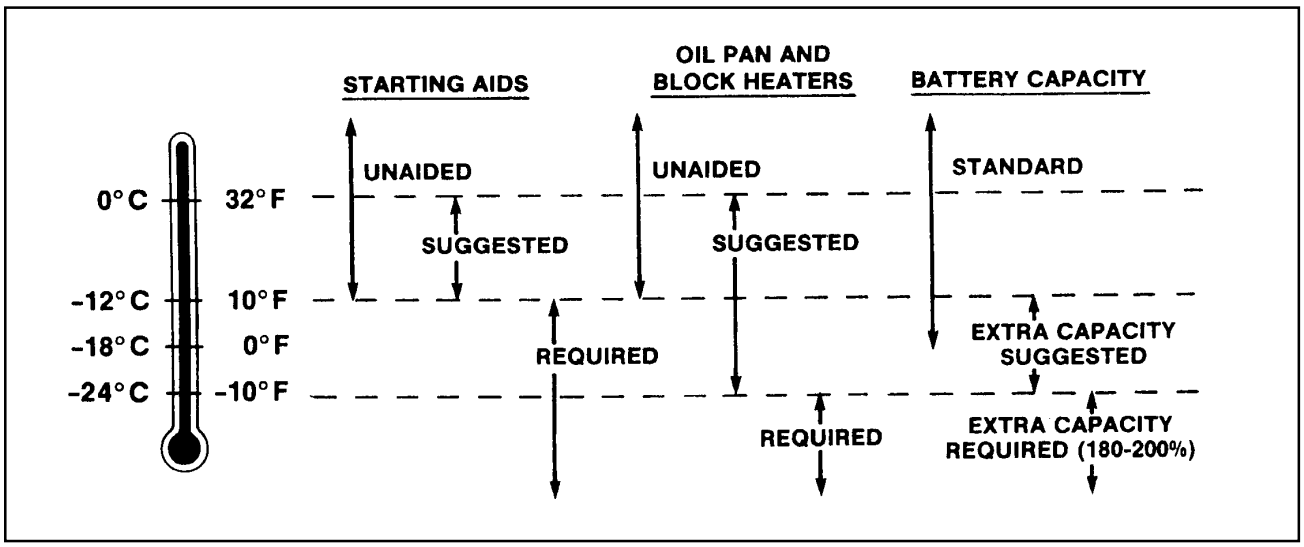
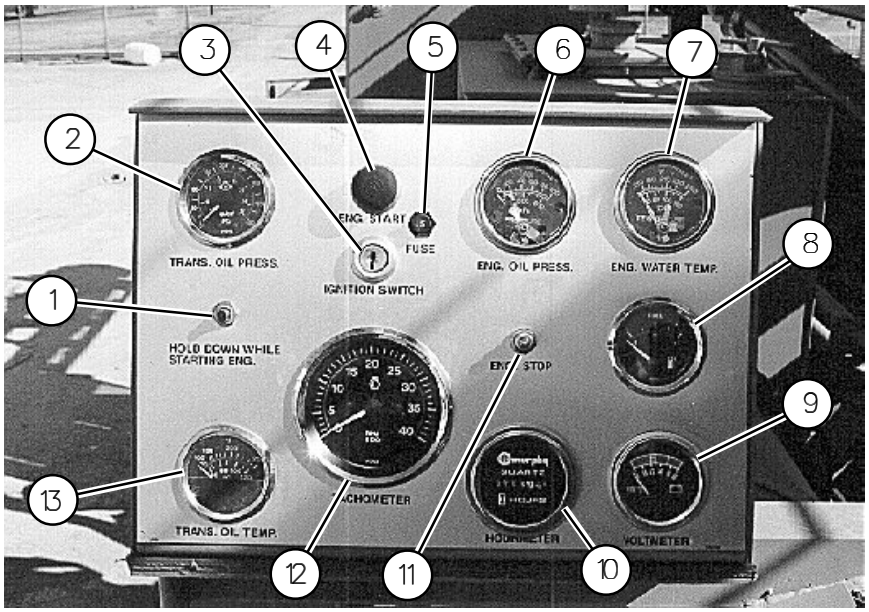


Fig. 3-2 Cold Weather Staring Aid Suggestion (ref. Cummins B Series Engines)

Shutdown Procedure

1. Let machine idle for 3-5 minutes.
2. Be sure all controls are in the OFF or NEUTRAL position.
3. Be sure parking brake is set on truck mounted machines.
4. Turn ignition switch (3) to OFF position and then push and hold engine stop switch (11) until engine has stopped..

NOTE **Older machines may be equipped with a manual fuel shut off. In this case, after ignition switch is turned OFF, pull out the engine stop control until engine stops. When engine has completely stopped, push engine stop control back in.**



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Notes

Controls - Functions and Limitations

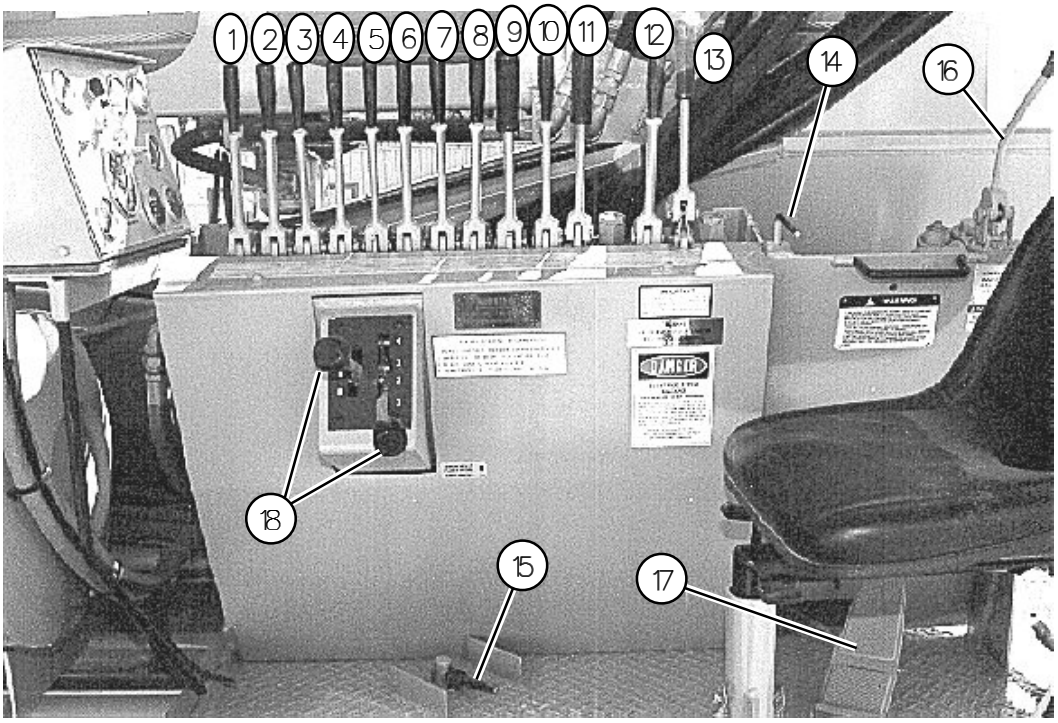

Fig. 3-3 Control Panel

Item	Description
1	Mast Elevating Control
2	*Front Outriggers
3	*Left Front Jack
4	*Right Front Jack
5	*Rear Outriggers
6	*Left Rear Jack
7	*Right Rear Jack
8	Service Winch Control
9	Turntable (Swing) Control
10	Frame Travel Control
11	Outer Kelly Control - Regeneration - Lower - Neutral-Raise
12	Mast Leveling Control
13	Outer Kelly Control - Float - Slow Crowd - Neutral - Slow Hoist
14	Water Lever
15	Inner Kelly Float Pedal
16	Inner Kelly - Lower - Lift
17	Engine Throttle Control
18	Transmission Shift Control

*** Not used on track mounted machines.**

NOTE **The left side of the machine is the side where the operator is seated.**

1. Engine Speed

The ENGINE THROTTLE (17) is located directly by the operator's right foot controls the engine speed and hence the speed of all other functions. Push the pedal toward the floor to increase engine speed. The pedal is spring returned to low engine speed.

2. Auger (Kelly) Bar Rotation

The TRANSMISSION SHIFT CONTROL (18) is to the left of the operator and selects both the direction and the speed range of the kelly bar rotation. The kelly speed is then controlled with the engine throttle (17).

NOTE **Do not engage the transmission or change speed range selection with the engine at high speed. Only change the selector position with the engine at low idle.**

DANGER:
LOOK UP before raising mast.
DO NOT allow mast to come near electrical power lines.
See Minimum Clearance Chart of Energized High Voltage Lines in section 1. This machine is not insulated.

3. Mast Raise and Lower

The mast is elevated to a vertical working position from the horizontal transporting position by means of the elevation cylinder. Pulling the MAST ELEVATING LEVER (1) toward the operator raises the mast and pushing the lever away from the operator lowers the mast. Both operations should be done cautiously as not to jar or bounce the machine. The lever is spring returned to the neutral position.

4. Mast Side Leveling

The leveling cylinder positions the mast vertically from left to right. Pushing the LEVELING CONTROL LEVER (12) away from the operator moves the top of the mast to the right; pulling toward the operator moves the top of the mast to the left (toward the operator). The lever is spring returned to the neutral position.

WARNING:
Unit Can become unstable and overturn. Use care when swinging over the side of the base with large, heavy or heavily loaded augers. When on any degree of side incline, do not swing the auger to the downhill side.

CAUTION:
Hitting the machine base with the auger can cause damage to the machine. At all times, be careful when swinging over the side of the base making sure the auger is clear of the structures.

5. Turntable

The digger can be swung to either side of the base with the 360^0 turntable, to allow digging on either side, as well as, at the rear or front of the machine (track mounted machines only). Pushing the TURNTABLE CONTROL LEVER (9) away from the operator swings the auger to the right and pulling the lever toward the operator swing the auger to the left.

Controls - Functions and Limitations

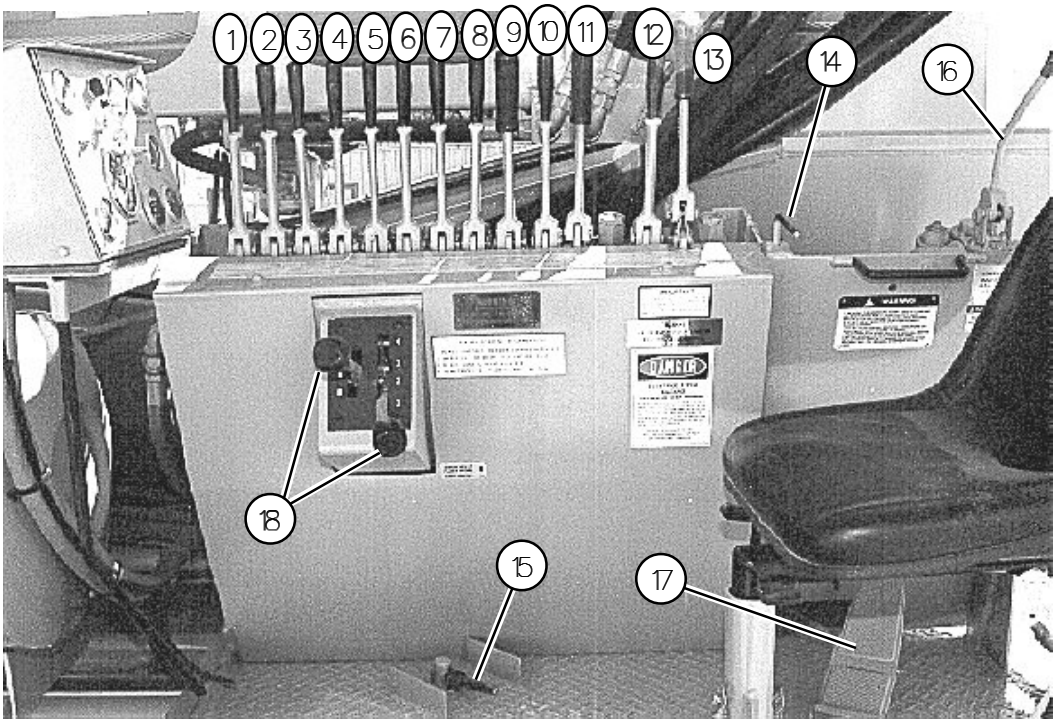

Fig. 3-3 Control Panel

Item	Description
1	Mast Elevating Control
2	*Front Outriggers
3	*Left Front Jack
4	*Right Front Jack
5	*Rear Outriggers
6	*Left Rear Jack
7	*Right Rear Jack
8	Service Winch Control
9	Turntable (Swing) Control
10	Frame Travel Control
11	Outer Kelly Control - Regeneration - Lower - Neutral-Raise
12	Mast Leveling Control
13	Outer Kelly Control - Float - Slow Crowd - Neutral - Slow Hoist
14	Water Lever
15	Inner Kelly Float Pedal
16	Inner Kelly - Lower - Lift
17	Engine Throttle Control
18	Transmission Shift Control

*** Not used on track mounted machines.**

6. Frame Travel

Frame travel greatly expedites spotting the auger over the hole site. Pulling the FRAME TRAVEL CONTROL LEVER (10) toward the operator extends the frame and pushing the lever away from the operator retracts the frame. In addition to spotting the auger, frame travel permits larger augers to be swung around the crawler assemblies (or outriggers on truck mounted machines). Always have the frame fully retracted before lifting any loads with the winch.

7. Auger (Kelly) Bar

CAUTION:
Be careful when using the REGENERATION position of the OUTER KELLY CONTROL LEVER this position causes the outer kelly to lower at a rapid rate.

A. The outer kelly bar is raised and lowered by applying oil to the feed ram (crowd cylinder). The motion of the cylinder is transmitted to the kelly via wire rope and sheaves.
For normal hoisting and lowering into the hole, the outer kelly bar is controlled by the OUTER KELLY CONTROL LEVER (11); by pulling the lever toward the operator, the kelly bar is raised and by pushing the lever away from the operator, the kelly bar is lowered. When the lever is pushed further, the regeneration position is engaged. This will cause the outer kelly to lower at a rapid rate by adding extra oil to the hoist/crowd cylinder. Use caution when engaging the regeneration position, as equipment damage can result due to inexperience.

CAUTION:
When lowering the outer kelly, also lower the inner kelly to ensure the outer kelly is not setting on top of the auger and putting the inner kelly cable under load.

For the slow lowering needed to keep crowd force on the auger during drilling, the outer kelly is controlled by the OUTER KELLY CONTROL LEVER (13). By pushing the lever away from the operator, the outer kelly will slowly lower (crowd) the auger. By pushing the lever further the valve goes into the detented "float" position. In the "float" position there is no pressure on the hoist/crowd cylinder. This position is used to lower the inner and outer kelly at the same time. By pulling the lever toward the operator, the outer kelly will slowly raise. The slow raise will very rarely be used.

B. The middle kelly (used on Model 800) is free floating between the inner and outer kelly bars. When lowering the inner kelly, the middle kelly lowers with the inner kelly until it bottoms out against the lower stop in the outer kelly. When raising the inner kelly, the middle kelly stays in place until the lower stop on the inner kelly engages the bottom end of the middle kelly, at which time the middle kelly raises with the inner kelly bar.

Controls - Functions and Limitations

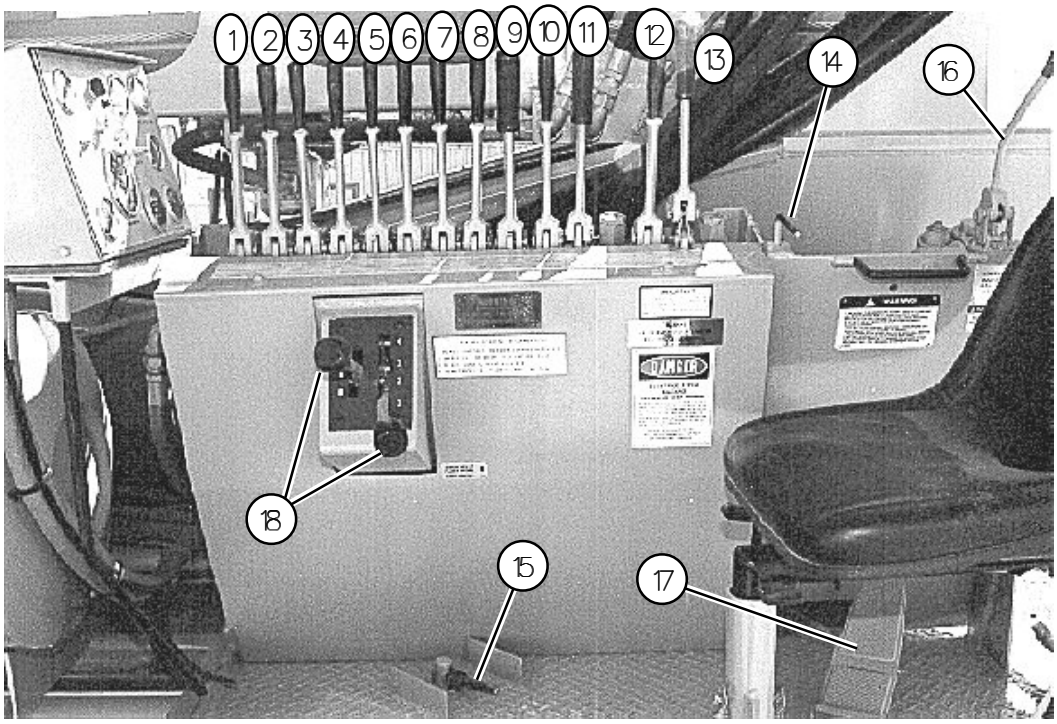

Fig. 3-3 Control Panel

Item	Description
1	Mast Elevating Control
2	*Front Outriggers
3	*Left Front Jack
4	*Right Front Jack
5	*Rear Outriggers
6	*Left Rear Jack
7	*Right Rear Jack
8	Service Winch Control
9	Turntable (Swing) Control
10	Frame Travel Control
11	Outer Kelly Control - Regeneration - Lower - Neutral - Raise
12	Mast Leveling Control
13	Outer Kelly Control - Float - Slow Crowd - Neutral - Slow Hoist
14	Water Lever
15	Inner Kelly Float Pedal
16	Inner Kelly - Lower - Lift
17	Engine Throttle Control
18	Transmission Shift Control

*** Not used on track mounted machines.**

NOTE **The inner kelly winch is equipped with a "Rapid Reverse" feature that allows the inner kelly to be lowered at a very rapid rate of speed. By pushing the INNER KELLY CONTROL LEVER (16) away from the operator the rapid reverse function of the winch is engaged.**

CAUTION:
Be careful with the "Rapid Reverse" feature. Full stroking of this control will cause the kelly bar to lower at very high speeds. The novice operator should practice well the use of this control before attempting to use it in production drilling.

C. The inner kelly (auger) bar is suspended on a cable from the inner kelly winch. The winch is controlled by the INNER KELLY CONTROL LEVER (16). By pulling the lever toward the operator, the inner kelly will raise and by pushing the lever away from the operator, the inner kelly will lower. When working in deep holes, lower both the inner and outer kelly bars.

NOTE **If the inner kelly bar is lowered too far without lowering the outer kelly, the inner kelly can become disengaged from the middle kelly. No damage to the equipment should result, but time will be lost re-engaging the bars.**

WARNING:
The "Inner Kelly Float Pedal" control is not to be used as a free-fall devise. Operation of this devise as a free-fall function can cause serious personal injury.

D. The inner kelly winch is also equipped with a "Inner Kelly Float" devise which releases the winch brake and allows cable to be pulled from the inner kelly winch during drilling and while raising the mast. This INNER KELLY FLOAT PEDAL (15) is operated by the operator's left foot.

WARNING:
Never Attempt to move the machine with a load suspended from the winch line. Always keep the mast vertical and the auger on the ground when lifting a load.

8. Service Winch

The hydraulically driven service winch is used for setting poles, casings, etc. Two service winch options are available on the **Model 800**; one with 5,500 lb. (2,497 kg) line pull and the other with a 10,000 lb. (4,540 kg) line pull. Be sure you know which one the rig is fitted with.

Pushing the WINCH CONTROL LEVER (8) away from the operator will reel out (or pay out) cable and pulling the lever toward the operator will reel in (or pull in) cable.

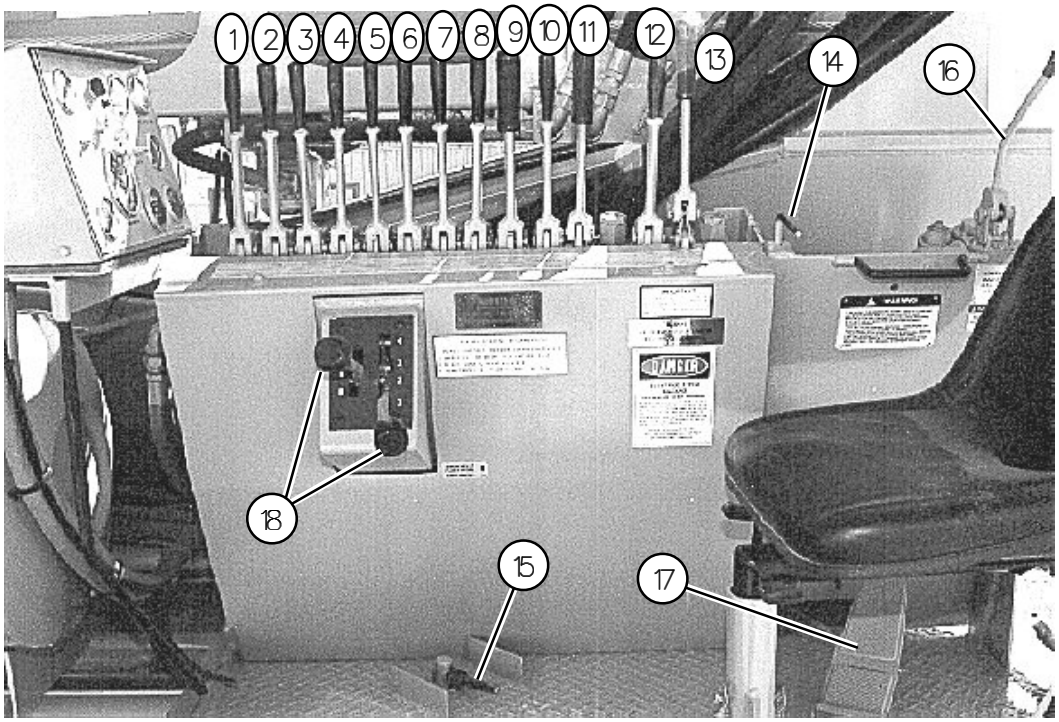

Fig. 3-3 Control Panel

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1	Mast Elevating Control
2	*Front Outriggers
3	*Left Front Jack
4	*Right Front Jack
5	*Rear Outriggers
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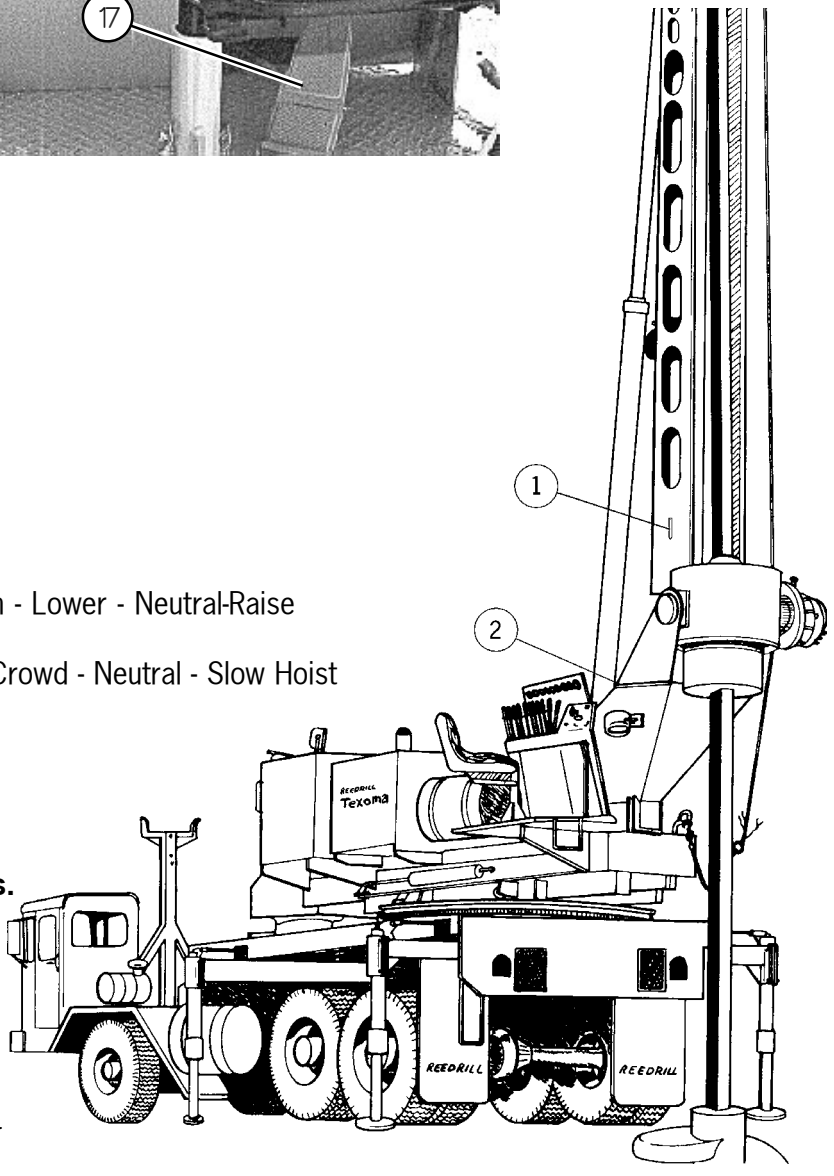

Fig. 3-4 Leveling Indicators
1. Mast Leveling Indicator
2. Trunnion Leveling Indicator

Setting Up For Drilling

1. Start engine and allow time for it to warm up to ambient temperature, in extremely cold temperatures, machine should be allowed additional time to warm up (refer to "Cold Start Procedure" at the beginning of this section or consult engine manual).
2. On truck mounted machines:
   a. Extend the FRONT OUTRIGGERS (2) left and right.
   b. Extend the REAR OUTRIGGERS (5) left and right.
   c. Lower the LEFT REAR JACK (6).
   d. Lower the LEFT FRONT JACK (3)
   e. Lower the RIGHT REAR JACK (7).
   f. Lower the RIGHT FRONT JACK (4).
3. After all jacks are lowered to the ground, you are ready to level the machine by pulling or pushing the appropriate jack levers.

> **DANGER:**
> **LOOK UP before raising mast.**
> **DO NOT allow mast to come near electrical power lines.**
> **See Minimum Clearance Chart of Energized High Voltage Lines in section 1. This machine is not insulated.**

4. Raise the mast by pulling on the MAST ELEVATING CONTROL LEVER (1). As the mast assembly is being raised, make sure you keep your left foot on the INNER KELLY FLOAT PEDAL (15) this releases the inner kelly winch brake to release slack in the cable as you raise the mast. This will allow the cable to feed off the winch drum, so kelly swivel or winch line will not be damaged.
5. After you set the mast assembly up to 90%, you are ready to use your FRAME TRAVEL LEVER (10) to move the frame in or out in order to line up with the drill stake. After you line the auger point up with the drill stake and before you start to drill, check to make sure the unit is level in order to maintain a plumb hole. Check leveling indicators on mast and trunnion (fig. 7-4), if leveling is needed, use the MAST LEVELING CONTROL (12) or the MAST ELEVATING CONTROL LEVER (1).

Drilling

1. Now you are ready to lower the inner kelly down to the ground level and start drilling. Start by pushing the INNER KELLY CONTROL LEVER (16). Now that you are on the ground and are ready to drill, use your left foot to push down the INNER KELLY FLOAT PEDAL (15) while drilling. This releases the inner kelly winch brake.

NOTE **The auger will not drill into the ground if the winch is holding the inner kelly back.**

2. Use the TRANSMISSION SHIFT CONTROL (18) to select the proper gear in which to drill. When the unit is placed in gear and the auger is turning, you must crowd the auger into the ground. In order to do this, engage the OUTER KELLY CONTROL LEVER (13) in "Slow Crowd" position. For example, in rock you would use the "Slow Crowd" position and in dirt you would use the OUTER KELLY CONTROL LEVER (11) to let the outer kelly bar crowd the auger .
3. After the auger has cut the material and you are ready to remove the cuttings out of the hole, place the TRANSMISSION SHIFT CONTROL (18) in neutral, take your foot off the INNER KELLY FLOAT PEDAL (15), pull the OUTER KELLY CONTROL LEVER (11) to raise the outer bar and then pull the INNER KELLY CONTROL LEVER (16) to remove the auger out of the hole.

NOTE **If you have over-drilled the auger in the ground, place the TRANSMISSION SHIFT CONTROL (18) in reverse and back out of the load and pull the INNER KELLY CONTROL LEVER (16) at the same time. This will allow you to break away from the bottom of the hole.**

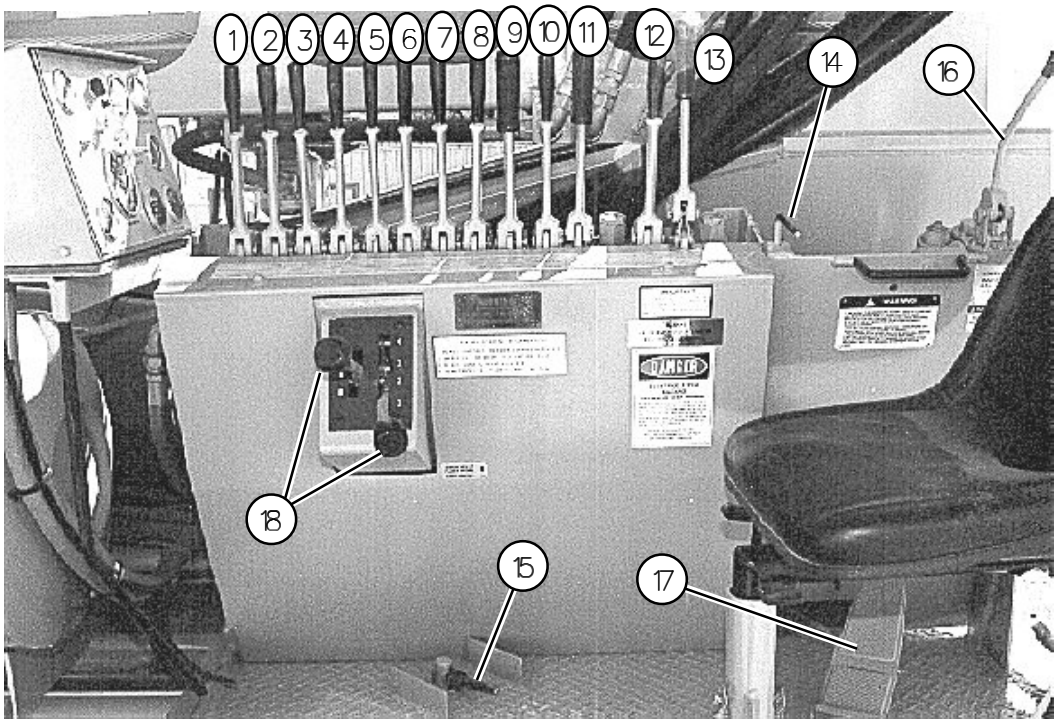

Fig. 3-3 Control Panel

Item	Description
1	Mast Elevating Control
2	*Front Outriggers
3	*Left Front Jack
4	*Right Front Jack
5	*Rear Outriggers
6	*Left Rear Jack
7	*Right Rear Jack
8	Service Winch Control
9	Turntable (Swing) Control
10	Frame Travel Control
11	Outer Kelly Control - Regeneration-Lower-Neutral-Raise
12	Mast Leveling Control
13	Outer Kelly Control - Float-Slow Crowd-Neutral-Slow Hoist
14	Water Lever
15	Inner Kelly Float Pedal
16	Inner Kelly - Lower-Lift
17	Engine Throttle Control
18	Transmission Shift Control

*** Not used on track mounted machines.**

Drilling - continued

WARNING:
Unit Can become unstable and overturn. Use care when swinging over the side of the base with large, heavy or heavily loaded augers. When on any degree of side incline, do not swing the auger to the downhill side.

CAUTION:
Hitting the machine base with the auger can cause damage to the machine. At all times, be careful when swinging over the side of the base making sure the auger is clear of the structures.

4. After the auger has been removed from the hole, use the TURNTABLE SWING CONTROL LEVER (9) to swing the auger to either side; left or right, to spin the dirt off the auger. Swing back over the hole and lower the auger back in the hole, using the INNER KELLY CONTROL LEVER (16). To continue drilling, repeat steps one and two, listed under "Drilling".

NOTE **When lowering the auger back into the hole, do not pay off cable after the auger makes contact with the bottom of the hole. This will cause a backlash or "bird nest" on the winch drum.**

After Drilling - Before Moving to Next Hole

WARNING:
NEVER move machine with the mast up. Lower mast onto mast rest (headache rack) before moving machine.

1. After you are finished drilling the hole, be sure the auger is clear of the hole. You are now ready to lower the mast. To do this, you must take up the slack in the inner kelly by pulling the INNER KELLY LEVER (16) as the mast is lowered the kelly will be moving out the rear of the assembly. You must lower the mast before you raise the jacks (truck mounted machines).

CAUTION:
Before Lowering the mast, be sure it is vertical from side-to-side with respect to the machine. Lower slowly to be sure mast will clear other parts of the machine and will fit correctly in the mast rest (headache rack).

2. Lower the mast into the mast rest (headache rack) for storage. Raise all four jacks, retract the outriggers (truck mounted machines) and then move to the next hole.
3. Repeat set-up and drilling procedures as required.

Notes

Lubrication, Adjustments and Torque Specifications

CAUTION:
The lubrication chart found within this section is to be used as a guide for the Operator in performing basic on-the-job Lubrication/Preventive Maintenance. The chart is NOT intended to be used for Service.
For extreme hot, cold or dusty conditions, consult factory for lubricant specifications and filter change intervals.

Lubrication Diagram

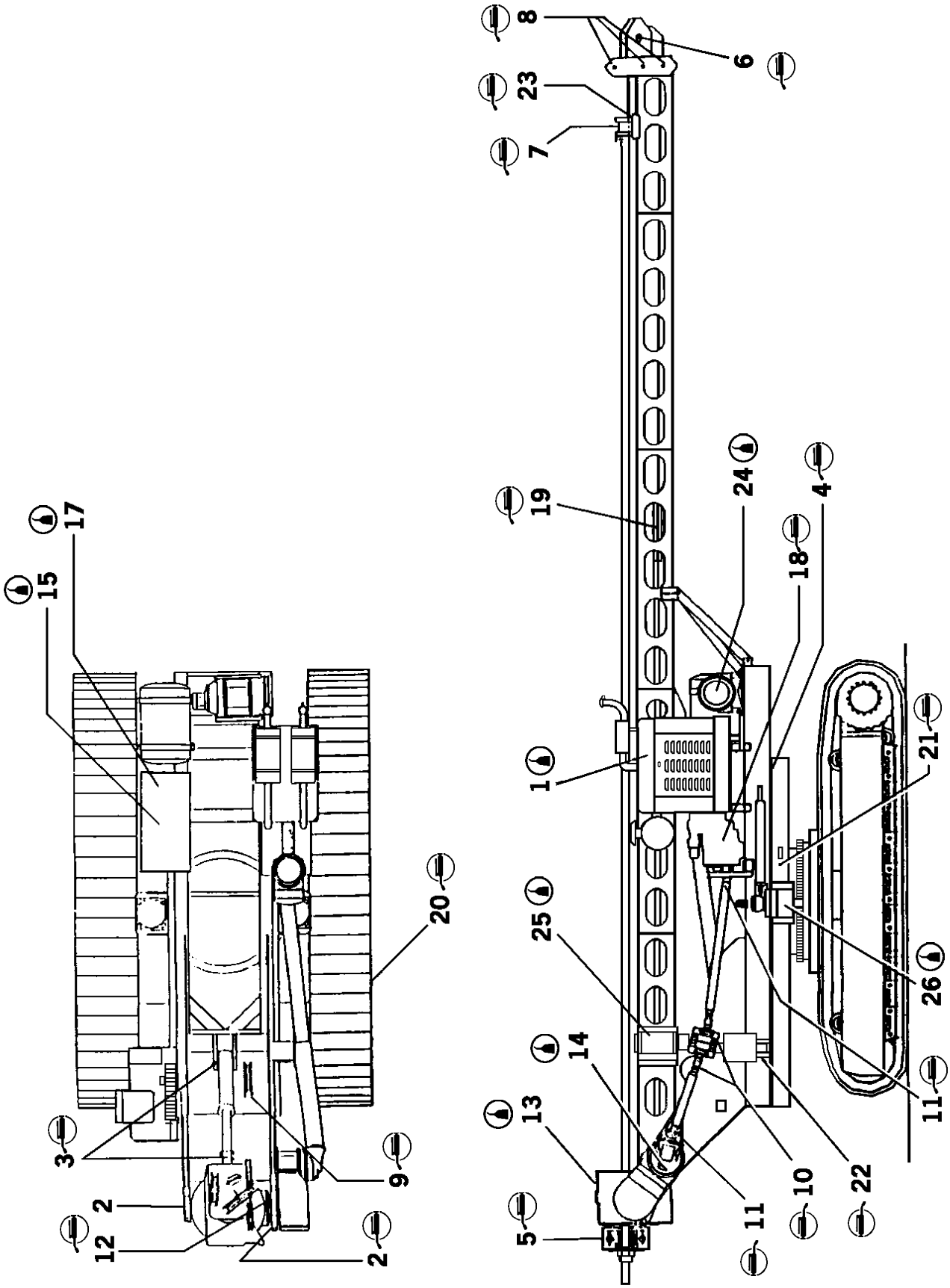

Figure 4-1 Lubrication Diagram (drive shaft guard not shown for clarity).

Lubrication Chart

Ref.	Equipment to Service	Recommended Lubricant	Lubrication Period	Special Instructions
1.	Engine	Refer to Engine Manual.	Check oil level every 6 hrs., add as required. Change every 250 hrs.	Drain Engine Oil with engine at operating temperature.
			Clean filter case and replace element every 250 hrs.	Use suitable non-combustible solvent to clean case. Make sure filter elements and cover gaskets are properly sealed; run engine and check for leaks.
	Engine Coolant	Clean water with rust inhibitor anti-freeze 50-50 mix.	Check every 8 hrs. Maintain level one inch below top of tank.	
	Engine Fuel Filter		Replace every 250 hrs.	
2.	Trunnion	Grease	40 Hrs.	2 Points
3.	Elevating Cylinder	Grease	40 Hrs.	2 Points each cylinder
4.	Frame Slides	Grease	Daily	4 Points each side
5.	Roller Drive	Grease	Daily	2 Points
6.	Crown Block	Grease	Daily	5 Points each sheave
7.	Outer Kelly Swivel	Grease	Daily	3 Points
8.	Service Winch Cable Guide Sheaves	Grease	40 Hrs.	1 Point
9.	Lower Crowd Sprocket	Grease	Daily	2 Points
10.	Drive Shafts	Grease	40 Hrs.	2 Points Each
11.	Universal Joints	Grease	Daily	2 Points
12.	Rt. Angle & Final Drive Assembly	Grease (grease fittings)	Daily	3 Points
13.	Final Drive	90W Gear Oil	Check Daily. Change 1,000 Hrs.	To level plug on cover. Do not overfill.
14.	Right Angle Drive	90W Gear Oil	Check Daily. Change 1,000 Hrs.	To level plug. Do not overfill.
15.	Hyd. Reservoir	Chevron AW MV ISO 32	Check Daily. Change annually	To full line on sight gauge. 120 gal. (455 liters)
16.	*Hyd. Reservoir Strainer		Remove and Clean every 500 Hrs.	Use suitable non-combustible solvent. Blow dry with compressed air. Do not damage screen.
17.	Hyd. Reservoir Filters		Replace every 250 Hrs.	Do not depend on visual inspection; change if gauge indicator points to Red.
18.	Transmission	SAE 30W Motor Oil	Check Daily. Change every 1,000 Hrs.	
19.	Crowd Sheaves	Grease	Daily	2 Points
20.	Crawler Tracks	Grease	Daily	8 Points
21.	Center Bearings	Grease	50 Hrs.	2 Points
22.	Leveling Cylinder	Grease	Daily	2 Points
23.	Inner Kelly Winch Cable Swivel		Daily	1 Point

NOTE *** Hydraulic Reservoir Strainer is inside the reservoir.**

Lubrication Chart

Ref.	Equipment to Service	Recommended Lubricant	Lubrication Period	Special Instructions
24.	Inner Kelly Winch	SAE 90 W Oil	Initial change at 6 months or 250 hours, whichever occurs first. Then every 12 months or 500 hours, whichever occurs first.	Oil Capacity is 3.6 gallons (13.6 liters) Use correct weight oil for ambient operating temperatures.
25.	Service Winch	Texaco Meropa 150 or (AGMA No. 4EP) Texaco Meropa 220 or (AGMA No. 5 EP) Texaco Pinnacle 150 or Mobil SHC 629	Every 6 months or 1000 hrs.	-10° F to 80° F (-23.3° C to 26.6° C) 50° F to 130° F (10° C to 54.4° C) -30° F to 80° F (-34.4° C to 26.6° C) Oil Capacity is 6 Pints (2.8 liters)
26.	Turntable Drive	Hydraulic Oil same as system	Same as Hydraulic Reservoir 500 hours	Oil Capacity is 14.5 quarts (13.7 liters)

Selection of Hydraulic Oil

Machines are factory filled with Chevron AW MV ISO 32 Hydraulic Oil, unless specified otherwise by the customer.

Hydraulic Oils meeting the specifications in the chart below will be acceptable for use in **Reedrill** Auger Drills. If in doubt, contact your oil supplier or your nearest Svedala Drilling distributor.

	MOBIL DTE SERIES OR EQUAL			
	13M	**15M**	**18M**	**19M**
Product Number	60269-8	60272-2	60278-9	60279-7
Gravity, API	31.2	30.7	5	27.6
Pour Point, °C (°F), max	-40 (-40)	-40 (-40)	-29 (-20)	-23 (-10)
Flash Point, °C (°F), min	177 (350)	177 (350)	204 (400)	204 (400)
Viscosity				
cSt at 40°C	33	48	104	145
cSt at 100°C	6.1	8.0	12.9	16.9
SUS at 100°F	171	247	544	764
SUS at 210°F	47	53	71	87
cP at -34°C (-30°F)	7,680	13,500	-	-
ISO Viscosity Grade	32	46	100	150
Viscosity Index min	140	135	120	120
Rust Protection, ASTM D 655A & B	Pass	Pass	Pass	Pass
Foam Test, ASTM D 892, I, II, III, ml	20/0	20/0	20/0	10/0
Emulsion Test, ASTM D 1401 minutes to 37 ml water	10	10	10	10
Color, ASTM D 1500	1.5	1.5	2.5	4.0

Bolt Maintenance

WARNING:
BE SURE all bolts are tight and not damaged. Pay particular attention to critical areas, such as; feed ram, right angle drive pivot, final drive mounting, elevating and leveling cylinder pivots, or any areas where loose bolts could cause a component to fall and cause injury.

Retorque bolts after first 50 hours of machine operation. Retorque any bolts that are less than the specified value as listed in the Bolt Torque Specifications sheet or as specified on the assembly drawing. Pay particular attention to critical mounting areas, such as; feed ram, right angle drive pivot, final drive mounting, elevating and leveling cylinder pivots, or any areas where loose bolts could cause a component to fall and cause injury or machine damage.

Periodically inspect bolts for damage and replace as necessary. Check torque and retorque as required.

Bolt Grade Identification

Fig. 4-2 shows the common markings on bolt heads used on Reedrill/Texoma auger drills to identify what grade the bolt is. The grades shown are not all inclusive, but show what is commonly used on Reedrill/Texoma augers.

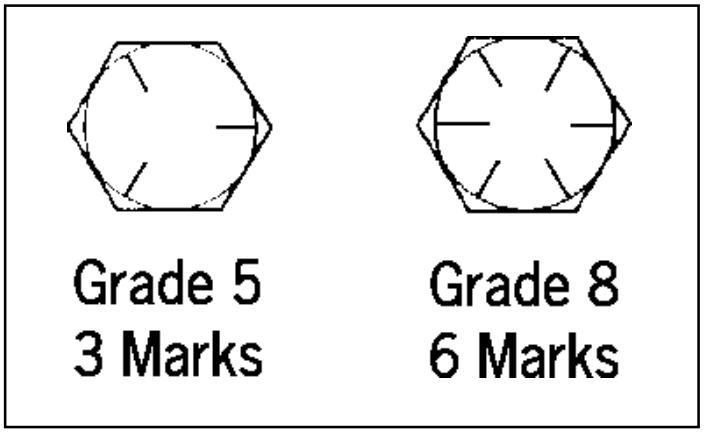

Fig. 4-2 Two commonly used bolt head markings

General Tightening Torque Specifications

Procedure No. 1-87 REVISION A

Torque Values: Bolts, Screws and Studs (Lubricated or Plated)
Tolerance Values in all cases to +5 % - 0 % of the Value listed below.
Note: K = .15 for plated or lubricated fasteners.

	Nominal Diameter	SAE Grade 5 ASTM A-449 Tightening Torque Ft. Lbs. (Nm) Newton meter	SAE Grade 8 Tightening Torque Ft. Lbs. (Nm) Newton meter
UNC	1/4	6 (8.2)	9 (12.2)
	5/16	13 (17.7)	18 (24.5)
	3/8	23 (31.3)	33 (44.9)
	7/16	35 (47.6)	55 (74.8)
	1/2	57 (77.5)	80 (108.8)
	9/16	82 (111.5)	115 (156.4)
	5/8	113 (153.7)	159 (216.2)
	3/4	200 (272)	282 (383.5)
	7/8	322 (437.9)	455 (618.8)
	1 also UNS	483 (656.9)	681 (926.2)
	1-1/8	596 (810.6)	966 (1313.8)
	1-1/4	840 (1142.4)	1363 (1853.7)
	1-3/8	1102 (1498.7)	1786 (2429)
	1-1/2	1462 (1988.3)	2371 (3224.6)
	1-3/4	1714 (2331)	
	2	2576 (3503.4)	
	2-1/4	3768 (5124.5)	
	2-1/2	5155 (7010.8)	
	2-3/4	6996 (9514.6)	
	3	9231 (12554.2)	
UNF	1/4	7 (9.5)	10 (13.6)
	5/16	14 (19)	20 (27.2)
	3/8	26 (35.4)	37 (50.3)
	7/16	40 (54.4)	60 (81.6)
	1/2	64 (87)	90 (122.4)
	9/16	91 (123.8)	128 (174.1)
	5/8	127 (172.7)	180 (244.8)
	3/4	223 (303.3)	315 (428.4)
	7/8	355 (482.8)	502 (682.7)
	1	528 (718.1)	746 (1014.6)
	1-1/8	668 (908.5)	1083 (1472.9)
	1-1/4	930 (1264.8)	1509 (2052.2)
	1-3/8	1254 (1705.4)	2034 (2766.2)
	1-1/2	1645 (2237.2)	2668 (3628.5)
UN	1-3/4	1879 (2555.4)	
	2	2857 (3885.5)	
	2-1/4	4127 (5612.7)	
	2-1/2	5726 (7787.4)	
	2-3/4	7693 (10462.5)	
	3	10064 (13687)	

Maintenance Record

DATE	DESCRIPTION OF SERVICE PERFORMED	SERVICE PERFORMED BY:

Maintenance Record

DATE	DESCRIPTION OF SERVICE PERFORMED	SERVICE PERFORMED BY:

Maintenance Record

DATE	DESCRIPTION OF SERVICE PERFORMED	SERVICE PERFORMED BY:

Maintenance Record

DATE	DESCRIPTION OF SERVICE PERFORMED	SERVICE PERFORMED BY:

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