



Technical Manual

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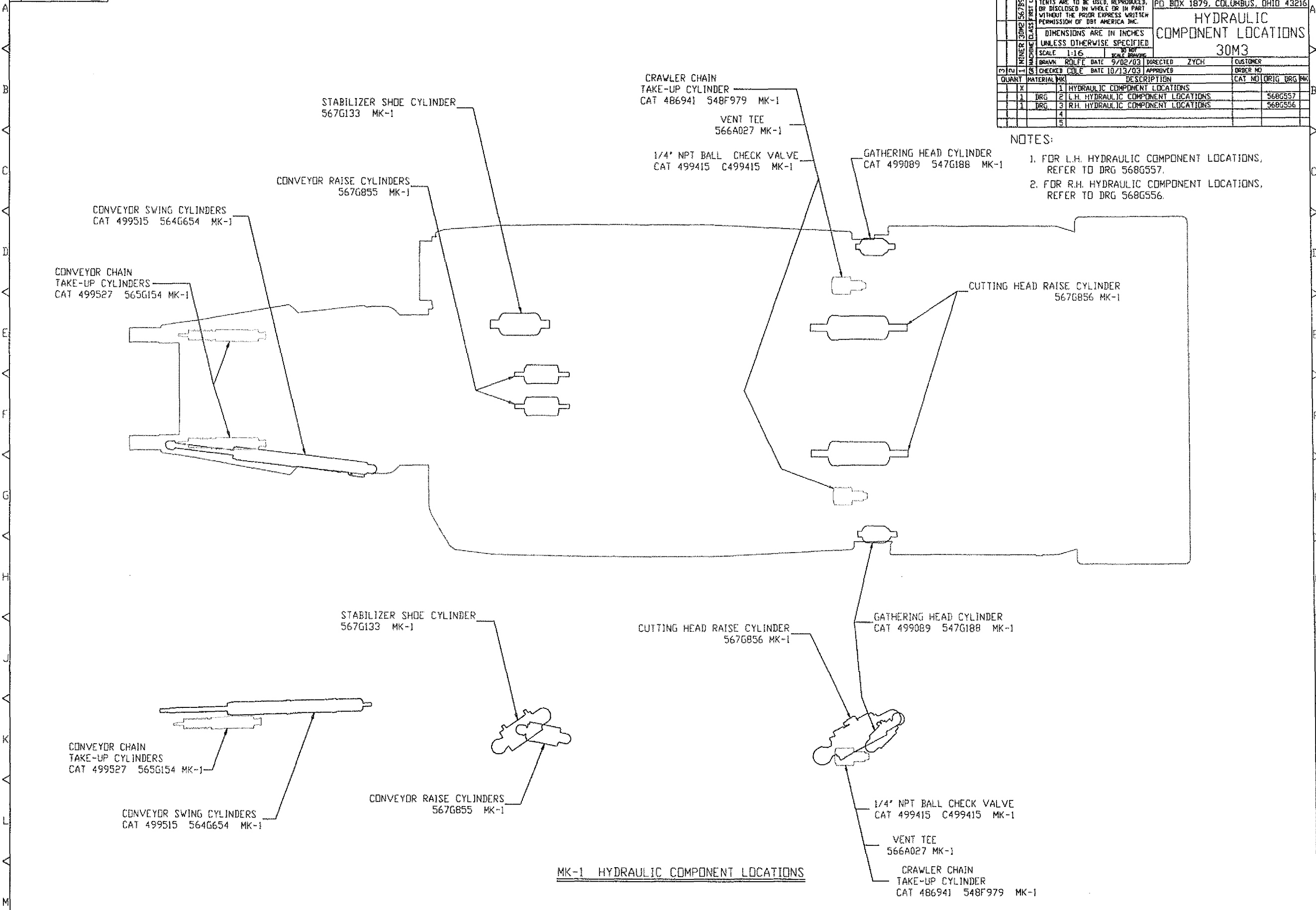
REVISIONS	
NO.	DESCRIPTION
1	ZONE-VAS-BY-DATE

568G555

DATE	9/26/03	DIRECTED	ZYCH	CUSTOMER
DRAWN		DATE	10/13/03	APPROVED
CHECKED		DATE		APPROVED
QUANT		MATERIAL		DESCRIPTION
1	X			1 HYDRAULIC COMPONENT LOCATIONS
1	DRG			2 L.H. HYDRAULIC COMPONENT LOCATIONS
1	DRG			3 R.H. HYDRAULIC COMPONENT LOCATIONS
				4
				5

DBT AMERICA
 PD BOX 1979, COLUMBUS, OHIO 43216

HYDRAULIC COMPONENT LOCATIONS
 30M3



- NOTES:
1. FOR L.H. HYDRAULIC COMPONENT LOCATIONS, REFER TO DRG 568G557.
 2. FOR R.H. HYDRAULIC COMPONENT LOCATIONS, REFER TO DRG 568G556.

MK-1 HYDRAULIC COMPONENT LOCATIONS

M

MANUAL CONTENTS

Table of Contents

Please read the important information contained in the above section titled *GENERAL SAFETY NOTICES*.

Section/Paragraph	Page
SECTION 1. SYSTEM COMPONENTS.....	1
1.1 Introduction.....	1
1.2 System Components	1
<i>1.2.1 Transmitter (TX944)</i>	<i>1</i>
<i>1.2.2 Endstation</i>	<i>2</i>
SECTION 2. OPERATIONAL SAFETY FEATURES.....	3
SECTION 3. GENERAL OPERATION.....	5
SECTION 4. TRANSMITTER MODEL TX944 LED DESCRIPTION	9
4.1 BATTERY/UMB MSG	9
4.2 ERROR.....	10
4.3 LINK REQUEST/SHUTDOWN.....	10
4.4 SWITCH ACTIVE/LOW BATTERY.....	10
4.5 TRAM ENABLE/INACTIVITY	11
4.6 LINK ACK/COMMANDED POWER DOWN	12
SECTION 5. OPERATION.....	13
5.1 Routine Operation	13
5.2 Controls	13
<i>5.2.1 CUTTER STOP.....</i>	<i>13</i>
<i>5.2.2 CUTTER START.....</i>	<i>13</i>
<i>5.2.3 CONVEYOR REVERSE.....</i>	<i>13</i>
<i>5.2.4 CONVEYOR STOP</i>	<i>14</i>

Once this process is done the handheld can be used as an endstation or unplugged from the machine and used as a transmitter. Since the machine unit holds only one serial number (transmitter's ID) and the handhelds only hold one serial number at a time (machine unit's ID) They will only communicate with each other. If there is another handheld in the area it will not communicate with the machine but it might cause some interference such as a lower number of messages per second that the system is capable of operating.

If the transmitter is the last one that had been used with the miner then there is no need to go through the "teach learn" sequence again. The transmitter can now be turned on and operated normally.

The transmitter will not work as a "radio transmitter" without the silver plug attached and screwed in the bottom of the unit.

5.2.28 *MSTOP OVERRIDE*

This button will override the machine stop button on the left side of the miner. This button should be held down while the pump is started and during tramming. This switch will be scanned upon startup and if held while starting up it will generate an error that will be displayed on the view screen.

5.2.29 *ENABLE*

The enable button will be used in conjunction with other switches. These switches will be marked with their function in green. This switch will be scanned upon startup and if held while starting up it will generate an error that will be displayed on the view screen. This toggle switch will generate an error if held on for more than 25 seconds and will send shutdown codes.

5.2.30 *TX POWER ON*

This push button is the “ON” button for the transmitter. This is the only function of this button

5.2.31 *TX POWER OFF*

This button will turn off the transmitter. It will initiate a shutdown sequence that will shut off all pumps and put the machine in a safe state. It will transmit these command 20 times and then shut off the transmitter.

5.2.32 *TRAM HIGH*

This button will put the miner in high tram. The button is a latch function. This button will only put the miner in high tram. While in high tram pressing this button will have no effect. This switch will be scanned upon startup and if held while starting up it will generate an error that will be displayed on the view screen.

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the signal is digital in nature and will either work or not work. So a low value for the strength will mean that the miner is approaching a point where signal loss can occur. This graphic can be used to tell if there is something wrong with the transmitter. If you hold the transmitter near the antenna and there is a low signal then you should investigate the antenna cabling first and then the transmitter should be checked for low power output. Another diagnostic tool is messages/second. When there is an active command this number should be around 8 to 12. If the transmitter is idle for 1 second this will decrease to 4 to 7 messages/second to save battery life. If there is interference from another transmitter then this will decrease the number of valid packets (messages) from the transmitter and the number will be smaller.

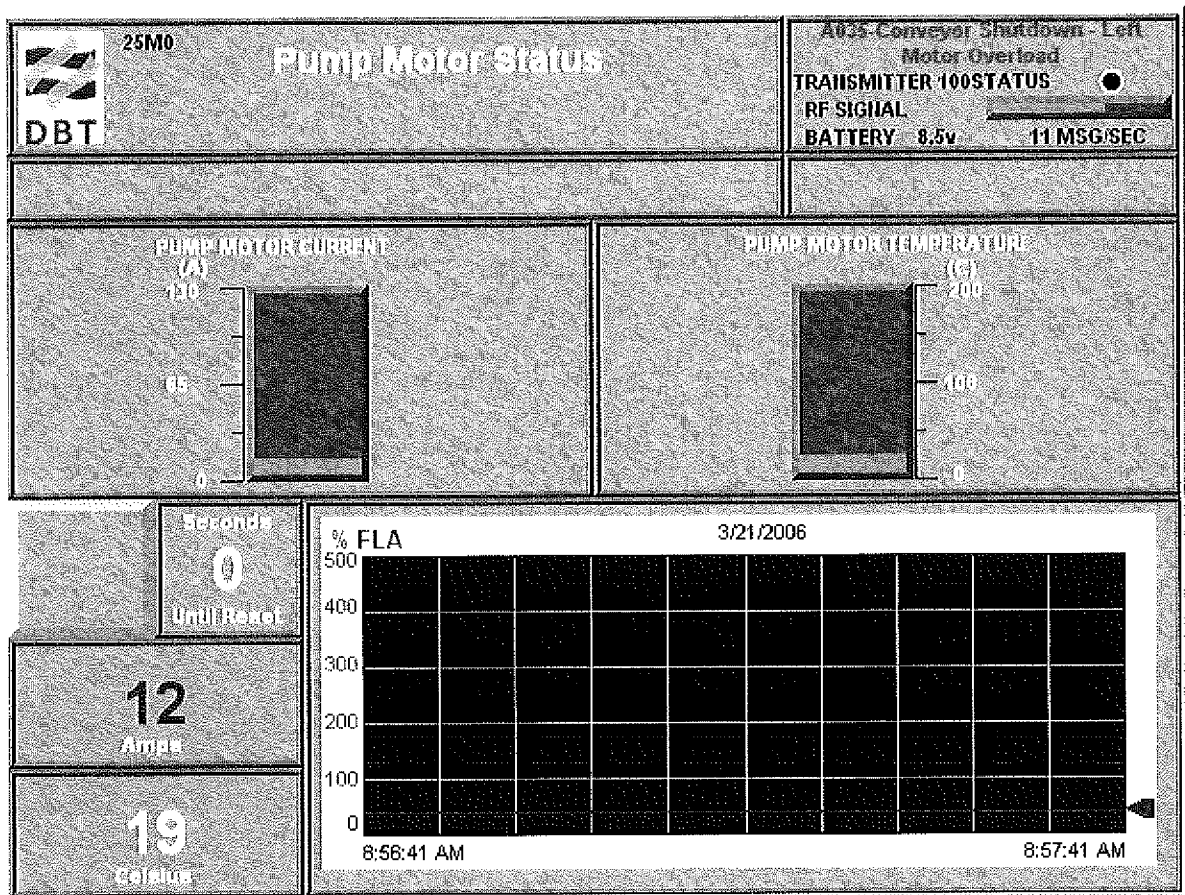


Figure 7.5 Display Pump Motors Status

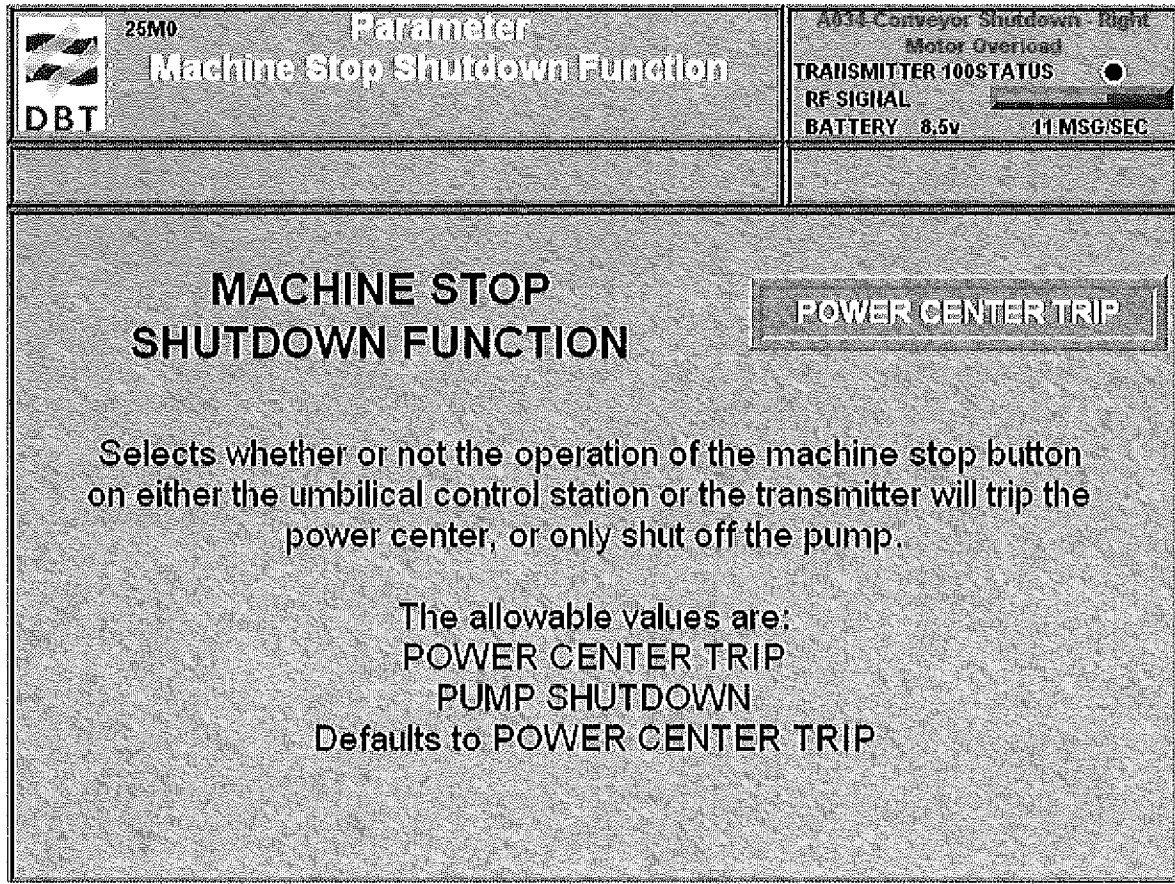


Figure 7.15 Display Parameter Machine Stop Shutdown Function

This screen is not accessible to the operator of the transmitter. The operator should be aware of the setting of this parameter. When the operator presses the Machine Stop button on the transmitter the value that this screen contains will decide if the power center relay will trip or not. This screen is accessible by using the IR pendant.

SECTION 11. IMPORTANT WARNING BULLETIN

WARNING!

FAILURE TO READ THIS BEFORE INSTALLATION CAN RESULT IN INJURY OR DEATH.

It is the responsibility of the installation technician to read and understand the following prior to installing and RX944. It is crucial that during installation of any RX944 the mode be unique to any other receiver in the area. At the time of installation a definitive check on the modes of all receivers in the area must occur. Note the modes of each receiver and select a mode that is unique for the installation. Failure to do so may result in two receivers accepting signals from one transmitter. Two machines would be controlled by one transmitter resulting in unwanted movement. This is essential to ensure safe operation.

BELOW IS MSHA PROGRAM INFORMATION BULLETIN P03-03

RECOMMENDED DESIGN SAFEGUARDS FOR PERMISSIBLE REMOTE CONTROLLED MINING MACHINE

SECTION 12. COAL MINE SAFETY AND HEALTH

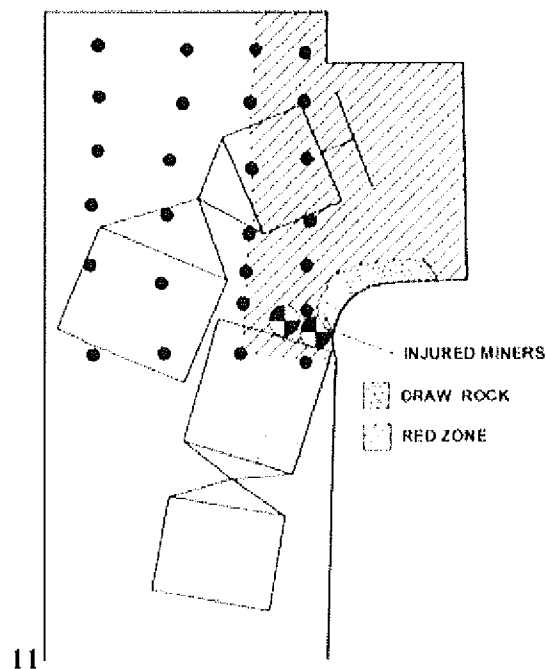


Figure 12.1 Red Zone - It Hurts to be in The Red Zone

Entering the “RED ZONE” continues to result in mine fatalities and injuries. A recent non-fatal roof fall accident occurred that resulted in injuries to two miners who were working in the “RED ZONE”. The miners were loading supplies onto the roof bolting machine from a battery scoop. The roof bolting machine was positioned at the mouth of an unbolted right crosscut and the scoop was positioned to the right-rear of the bolting machine with the bucket extending into the “RED ZONE”. The miners were in front of the bucket, between the first and second row of roof bolts, moving supplies to the roof bolting machine when the roof material fell. Draw rock fell along the right rib of the unsupported area and extended into where the men were working, striking and

SECTION 2. SYSTEM STATUS INDICATORS

2.1 Introduction

WARNING: Although this guide includes measurement information, it is not intended to imply breaching of any methane or hazardous isolation barriers to make actual measurements. Contact your supervisor if it is suspected that a more comprehensive troubleshooting method is required.

A sufficient complement of status LEDs is provided on the MCU944 to assist in quickly determining the source of most problems that may arise during operation. Additional status LEDs are provided on the RX944, TX944, CPS944, and DCD100 units.

2.2 Status LED Functional Categorization

The majority of status LEDs of interest in troubleshooting this remote radio control system are located on the MCU944. Each LED has a one-to-one correspondence with its connector pin. The layout of the connectors on the face plate is such that pins, and thus the LEDs, are grouped in functional categories as described in Table 2.1 and shown in Figure 2.1.

NOTE: LED locations on the MCU944 are with reference to their associated connector. The LEDs are located to the right of their connector.

WARNING: Only qualified personnel with approved training on this equipment and knowledgeable of MSHA safety requirements should perform troubleshooting of this system.

Refer to separate documentation for additional information on the TX944 Transmitter. Use Figure 2.2 as a location reference for the TX944 Transmitter.

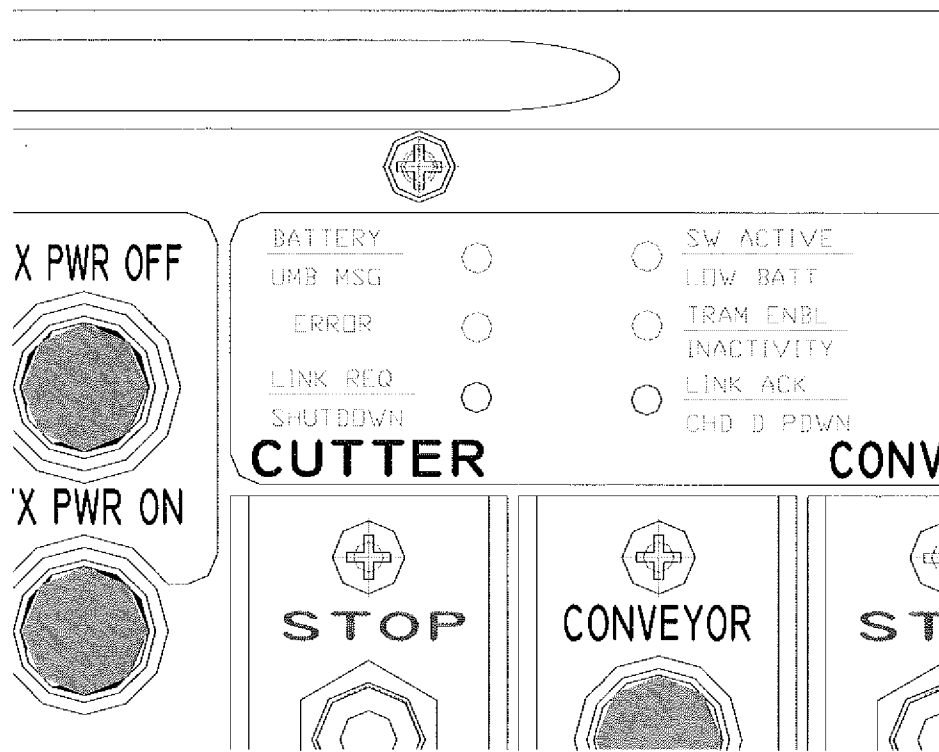


Figure 2.2 TX944 Transmitter Status LEDs

Table 2.3 TX944 Status LED Response Analysis

LED Function	Description
BATTERY/UMB MSG	<p><u>NOTE: THIS LED HAS 2 FUNTIIONS</u></p> <p>BATTERY Transmitter Mode: A flashing LED means that battery strength is good. A double blink –pause- double blink LED means the batteries need to be changed (approx. 24hrs left). The transmitter will run until the batteries are dead, but performance and range will diminish quickly and could be unsafe if trying to operate from a long range. When the LED double blinks the batteries should be changed without delay.</p> <p>Umbilical Message: LED blinks indicating that a message has been sent to the MCU. The blink rate should be steady at 10 times per second.</p>

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