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PLEASE READ ALL INSTALLATION AND OPERATING INSTRUCTIONS COMPLETELY BEFORE OPERATING MIXER. RETAIN FOR FUTURE REFERENCE.

IMPORTANT NOTE: HYD COILS MUST BE 12VDC FOR THE SYSTEM TO WORK PROMIX SD CAB BOX IS 12VDC SYSTEM ONLY 24VDC TRUCK WILL REQUIRE AN INLINE 24-12DC VOLTAGE REDUCER

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PROMIX SD TRANSIT MIXER RADIO REMOTE CONTROL SYSTEM

PROUDLY DESIGNED AND MANUFACTURED IN AUSTRALIA

The **WoodTech Electronics** *PROMIX SD* **TRANSIT MIXER RADIO REMOTE CONTROL SYSTEM** is an upgrade to our original Promix system which became an industry standard for over 10 years. Built on the solid foundation of Promix, Promix SD brings this popular product into the 21st century. Advanced SMT manufacturing techniques, more features including optional vehicle CANbus connection and low cost make this system hard to beat. Unique universal design suits all combinations of Trucks, Hydraulics and Mixers.

FEATURES

Australian Designed and Manufactured

The entire Promix SD system is built in Australia by engineers who have extensive experience in designing, manufacturing and commissioning electronic control systems for the heavy equipment and transport industries. As a result, many unique features are included to enhance system operation, promote ease of use, reduce operator fatigue and minimize downtime.

- Protection against reverse polarity
- Solenoid current compensated for changes in voltage and temperature.
- Spike protected
- Over voltage protected
- Pump solenoid outputs short circuit protected
- Fail safe loss of power results in no bowl rotation. (Bowl may be operated by manual overrides located on pump solenoids if this unlikely situation occurs.)
- Audible warning system to alert operator of certain conditions.
- Universal system suits all common hydraulics / vehicle combinations, selectable by onboard dipswitches.
- Major reduction in spare parts inventory due to wiring harness and main control board designed for universal application one part suits all vehicles / hydraulics.
- Optional J1939 CAN interface module for faster installation
- Hydraulic ramp rate for increase and decrease can be individually adjusted

If a fault should occur, a comprehensive on board L.E.D. diagnostic system has also been incorporated to give a visual aid to repair, without the need for specialized tools or knowledge. If at any time a fault is detected in either the receiver board or the main pc board within minutes the board can be changed and the system can be back on line. This eliminates costly down time.

IMPORTANT – 24V Vehicles

When system is installed into a 24v vehicle, voltage reducer P/N W001-005 is required and suggested rating for cooler fan fuse is 15A.

The Remote Control System

The advanced 915MHz remote control system utilizes the latest in Frequency Hopping Spread Spectrum technology (FHSS). Why is this important? Because it is the most immune to interference and therefore works more effectively on the job site than either 433MHz or 27MHz systems.

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The IP65 rated remote control hand piece contains a rechargeable battery, which is recharged automatically when returned to the cradle. Also supplied is a translucent silicone rubber cover to further assist in protecting the remote from environmental and physical damage.

As this system is Australian made, all components are readily available as spare parts at very cost effective prices – see our website woodtech.net.au/spare-parts. As your fleet of mixers grows spare parts could be held at your own depot to add in fast and efficient repair if they are required.

Operation via the Control Console

Functions that are common to both the Remote Control and the Control Console operate in the same manner regardless of the operating position.

On / Off Switch

Switches control system power on or off

Remote / Cabin Switch

Switches operational control between the Control Console and the Remote Control

Engine Up / Engine Down Switch

Pressing this switch up increases the Engine revs. Pressing it down decreases the Engine revs.

Discharge / Mix Switch & Travel Hi Speed

Pressing this switch up increases the mix bowl speed smoothly from zero to maximum rpm. This allows for almost unlimited bowl speed control. Pressing the MIX switch whilst discharging will decrease the discharge bowl speed.

Pressing this switch down increases the discharge bowl speed smoothly from zero to maximum rpm. This allows for almost unlimited discharge rates to suit any job requirements. Pressing the DISCHARGE switch whilst mixing will decrease the mix bowl speed.

When in discharge, every three seconds the buzzer will emit a short beep and the red discharge lamp on the control console will flash.

Pressing the mix switch whilst in Travel will ramp the travel speed up. This is useful when going up a steep incline to reduce the risk of product spilling from the mixer. The operator is alerted to this mode by three short beeps and blinking of the front panel travel lamp every 5 seconds. Pressing the discharge switch will ramp the travel speed back down to the base travel speed.

Chute Raise / Chute Lower Switch

Pressing this switch up will raise the chute. Pressing this switch down will lower the chute.

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Stop & Halt / Resume Switch

Pressing this switch up will stop the bowl rotation and returns the hydraulic pump to the neutral position. It also clears the Resume memory.

By using the MIX or DISCHARGE switch, you can simply press and hold until desired speed and direction is achieved. Now if you wish to HALT the bowl and retain that direction and speed setting, all you have to do is press the HALT / RESUME switch momentarily and the program will halt the bowl and store that setting for you (do not press the STOP /CLEAR button as this will clear the program memory). If you then wish to start the bowl rotating in the same direction and speed, you need only press the HALT / RESUME switch and the program will return the bowl to the same direction and speed as was previously stored.

If the bowl is halted by pressing the HALT / RESUME switch, the MIX and DISCHARGE switches are locked out so that you cannot change the speed or direction of the bowl.

If at any time the STOP switch is pressed when the bowl has been halted by using the HALT / RESUME switch, the RESUME memory will be cleared and the hydraulic pump will be returned to the neutral position. This will then allow you to reset the bowl direction to whatever you like. While the bowl is rotating in either MIX or DISCHARGE direction, you are able to vary bowl speed and direction.

Plant Mix / Travel Switch

Pressing this switch up activates the Plant Mix function. Plant Mix increases the bowl speed to maximum and increases engine RPM to the preset upper limit. Plant Mix is stopped by briefly activating the Stop switch.

It is possible to switch directly between Plant Mix and Travel Mode (and vice versa)

Pressing this switch down activates the Travel Mode function. Travel mode maintains a constant preset drive to the hydraulics (usually around 2rpm) while the vehicle is in transit. This mode can be used whilst transporting the load from the batching plant to the job site. Travel mode is stopped by briefly activating the Stop switch.

Pressing the mix switch whilst in Travel will ramp the travel speed up. This is useful when going up a steep incline to reduce the risk of product spilling from the mixer. The operator is alerted to this mode by three short beeps and blinking of the front panel travel lamp every 5 seconds. Pressing the discharge switch will ramp the travel speed back down to the base travel speed.

Operation via the Remote Control

Although the remote control transmitter is now commonly used in the mixer industry, there are added features programmed into the remote transmitter used in the WoodTech system. The most important system feature to understand the use of is the HALT / RESUME button.

When used on previous systems in conjunction with linear actuators to set the bowl rotation speed and direction, the STOP and RESUME buttons where simply used as a stop/start type system. With the introduction of the electronically controlled proportional hydraulics the use of the HALT / RESUME button has changed for the better. Please take the time to read and understand the use of the HALT / RESUME button.

To operate via the Remote Control, the REMOTE / CABIN switch on the control console must be in the REMOTE position.

Halt / Resume Button

By using the MIX or DISCHARGE buttons on the remote control transmitter, simply press and hold until desired speed and direction is achieved. Now if you wish to HALT the bowl and retain that direction and speed setting, all you have to do is press the HALT / RESUME button momentarily and the program will halt the bowl and store that setting for you (do not press the STOP /CLEAR button as this will clear the program memory). If you then wish to start the bowl rotating in the same direction and speed, you need only press the RESUME button and the program will return the bowl to the same direction and speed as was previously stored.

If the bowl is halted by pressing the HALT / RESUME button, the MIX and DISCHARGE buttons are locked out so that you cannot change the speed or direction of the bowl.

If at any time the STOP /CLEAR button is pressed when the bowl has been halted by using the RESUME button, the RESUME memory will be cleared and the hydraulic pump will be returned to the neutral position. This will then allow you to reset the bowl direction to whatever you like. While the bowl is rotating in either MIX or DISCHARGE direction, you are able to vary bowl speed and direction.

Stop / Clear Button

The STOP / CLEAR button stops the bowl rotation and returns the hydraulic pump to the neutral position. It also clears the Resume memory.

Engine Up Button

Increases the Engine revs.

Engine Down Button

Decrease the Engine revs.

Mix Button

Pressing and holding this button increases the mix bowl speed smoothly from zero to maximum rpm. This allows for almost unlimited bowl speed control. Pressing the MIX button whilst discharging will decrease the discharge bowl speed.

Discharge Button

Pressing and holding this button increases the discharge bowl speed smoothly from zero to maximum rpm. This allows for almost unlimited discharge rates to suit any job requirements. Pressing the DISCHARGE button whilst mixing will decrease the mix bowl speed.

When in discharge, every three seconds the buzzer will emit a short beep and the red discharge lamp on the control console will flash.

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Chute Raise Button

Raises the chute.

Chute Lower Button

Lowers the chute

Audible and Visual Warning System

The audible warning system has been designed to alert the operator to certain system conditions. Below is listed the buzzer type and condition.

BUZZER, LAMP	CONDITION
Continuous Tone	Remote control not in cradle
1 beep every 3 seconds	Bowl rotation in discharge
3 beeps every 3 seconds	High speed Travel mode active
1 beep every 0.5 second. Travel Lamp flash 0.5 second	Travel mode set to Programmable, Travel mode activated but no Tacho signal present. Travel mode calibration attempted but no Tacho signal present

Important Setup and Calibration Information

Your PROMIX control system is delivered with preset calibration and setup parameters.

To achieve optimum performance, minor adjustments and calibrations may need to be made to the following functions:

- Engine Revs Control
- Travel Mode base speed
- Plant Mix
- Hydraulic Ramp Rate (Increase and Decrease)

Please consult the relevant section of this manual for calibration and setup procedures. Vehicle specific wiring diagrams and information are supplied in addition to this manual.

Remote Control Transmitter and Receiver

The hand held remote control transmitter contains a 12way dipswitch. In order for your transmitter to work with your console the code of the 12way dipswitch must match the code on the label beside the charging cradle (see image above). A "1" indicates the corresponding switch should be in the "ON" position. A "0" indicates the corresponding switch should be in the "OFF" position.

The remote control transmitter contains a rechargeable, Nickel Metal Hydride (Ni-MH), 9 volt battery. Service life is expected to be approximately one year; however, the number of charge / discharge cycles

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will ultimately determine useful service life. Should the battery require replacement, only use the same size and type.

If the battery becomes discharged, the red LED on the remote control transmitter will flash slowly when a function is pressed. Returning the remote to the holder will automatically charge the battery (vehicle ignition switch must be on, emergency stop not activated).

Main Control Board Dipswitch Settings

The dipswitches on the main control board configure the various control system parameters to suit different vehicle / hydraulic combinations. They also select calibration mode for some functions. Only trained and competent personnel should make adjustments. See Figure 3 for location.

Dipswitch	Function	On	Off
1	Park Brake input required for Engine revs	Yes	No
2	A/T neutral input required for Engine revs	Yes	No
3	Engine revs control type	Cruise / Linear act.	Analogue
4	Proportional hydraulics type	Danfoss	Rexroth
5	Hydraulic pump control	Manual / Linear Actuator	Electronic
6	Plant Mix Mode	See Below*	-
7	Travel calibration mode select	Calibration mode ON	Calibration mode OFF
8	Reserved	-	-
9	Danfoss coil current reversal	Normal	Reversed
10	Travel Mode	Preset	Programmable

*Plant Mix Mode with vehicles using analog throttle control:

Dipswitch 6 OFF:

Cancelling Plant Mix, via the Stop switch or Footbrake, Engine and bowl will ramp down.

Dipswitch 6 ON:

Cancelling Plant Mix, via the Stop switch or Footbrake, Engine will ramp down and bowl stays at full mix. Adjustments on PCB

Legend on PCB	Functional Description
REVS RMP	Dipswitch 3 OFF – Adjusts rate at which the engine revs ramp up and ramp down. Clockwise = faster Dipswitch 3 ON – Adjusts Plant Mix engine ramp up and down time. Fully Clockwise = 20 seconds
REVS LO	Adjusts analog revs Low setting
REVS HI	Adjusts analog revs High setting
TRVL SPD	Dipswitch 10 ON - Adjusts travel base speed
А	Adjusts hydraulic ramp speed when increasing. Clockwise = faster
В	Adjusts hydraulic ramp speed when decreasing. Clockwise = faster
С	Not implemented
VR4	Remote accelerator voltage when system off

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Engine Revs Control

Cruise - Dipswitch 3 ON; Cruise/Actuator jumper in the CRUISE position

Ratiometric – Dipswitch 3 OFF; Cruise/Actuator jumper in the CRUISE position

Actuator - Dipswitch 3 ON; Cruise/Actuator jumper in the ACTUATOR position

Ratiometric Engine Revs Control

The maximum required engine RPM can be adjusted with the REVS HI adjustment. Turning clockwise will increase the RPM. Activate the Decrease Revs switch and the engine rpm should return to idle. The rate at which the engine revs ramp up and ramp down can be adjusted with the REVS RMP adjustment pot. Turning this pot clockwise makes the ramp time faster. Even when set to the fastest setting (fully clockwise), the vehicle ECU ultimately determines how quickly it will allow the engine to change rpm.

Most remote accelerator applications require a voltage of approx. between 0.4 - 1.0v before the engine will increase above idle. Because of this, there can appear to be some "dead time" from idle as you hold the Increase Revs button. The REVS LO adjustment pot "tunes out" this dead time by setting a minimum voltage somewhere between 0 - 1.0 volts. Turning the REVS LO pot clockwise increases this initial voltage.

If the setting of the REVS LO pot is too low, there will be noticeable "dead time" when initially increasing the rpm above idle. If the setting of the REVS LO pot is too high, the engine will not return fully to idle RPM. A little time spent getting this adjustment "just right" will improve the overall smoothness and operation of the system.

Signal Inputs from the Vehicle

Fuse Box Connections

Red wire with 15A fuse – 12v Ignition positive for control system Red wire with 20A fuse – Battery positive to fan relay Black wires – Negative to control box

Note: The battery feed to the fan relay and also the negative wires can carry in excess of 20amps of current, depending on the type of hydraulic cooler fan installed. It is important to make sound connections to wiring in the vehicle that can support this amount of current.

Park Brake Wiring

The blue wire must be connected to the Park Brake switch. If the Park Brake switches negative, the PB jumper must be in the N position. If the Park Brake switches positive, the PB jumper must be in the P position.

Service Brake Wiring

An input from the Service Brake switch is always required.

The Yellow/Red wire must be connected to the Service Brake switch. It requires a positive signal when the Service Brake is activated.

Automatic Transmission

If the vehicle is equipped with an automatic transmission, the dark green wire must be connected to the neutral switch. If Neutral switches negative, the NEU jumper must be in the N position. If Neutral switches positive, the NEU jumper must be in the P position.

Recommended Dipswitch Settings – Manual Transmission vehicles:

Blue wire connected to Park Brake Dipswitch1 – ON This setting selects the Park Brake Lockout to be active.

Recommended Dipswitch Settings – Automatic Transmission vehicles:

Park brake setting as above and also: Dark green wire connected to transmission neutral switch Dipswitch2 - ON This setting selects Transmission Neutral Lockout to be active.

WARNING:

Although it is possible to bypass the lockouts by leaving Dipswitch1 and Dipswitch2 switched off, THIS MAY COMPRIMISE THE SAFETY OF THE SYSTEM. WE STRONGLY ADVISE INSTALLATION AS PER THE ABOVE RECOMMENDATIONS.

Programmable Travel Mode Calibration (Dipswitch 10 OFF)

Start the engine, switch the control system on and select cabin mode. Carefully switch dipswitch 7 to the on position – the Travel and Plant mix lamps on the front panel should be illuminated.

While the engine is at idle, use the mix and discharge switches to set the bowl speed to the required RPM (usually 2RPM). When the desired bowl speed is reached, briefly activate the Cal Lo switch – there will be two beeps and the Travel lamp on the front panel will blink to confirm the low speed travel calibration point has been saved.

Increase the engine revs to maximum rpm. Again, use the mix and discharge switches to set the desired bowl rpm. When the desired bowl speed is reached, briefly activate the Cal Hi switch – there will be two beeps and the Plant Mix lamp on the front panel will blink to confirm the high speed travel calibration point has been saved.

Return dipswitch 7 to the off position. Travel mode calibration is now complete and Programmable Travel Mode is ready for operation.

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Preset Travel Mode Base Speed (Dipswitch 10 ON)

Base travel speed is set by trim pot TRVL SPD. Turning TRVL SPD clockwise will increase base travel speed. Pressing the mix switch whilst in Travel will ramp the travel speed up. Pressing the discharge switch will ramp the travel speed back down to the base travel speed.

Plant Mix Ramp Time

The following information is only applicable on vehicles where engine speed is controlled by cruise function (Dipswitch 3 ON).

Plant Mix engine ramp up and down time is adjustable within the range 4 to 20 seconds using the "RAMP" pot.

Plant Mix will apply full mix bowl speed and ramp engine speed up. Pressing the Stop switch or Travel switch will reduce bowl speed and ramp engine revs down. Plant Mix can be cancelled at any time by activating the Service Brake.

Wiring Codes and LED Diagnostics

Control Console Wiring – 37 pole connector

Pin Number	Colour	Function
1	Black	Ground
2	-	-
3	-	-
4	Pink	Dump valve – manual pump only
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-
11	Light Green	Rexroth solenoid common / Danfoss Pin A
12	Green / White	Rexroth discharge solenoid / Danfoss Pin B
13	Brown / White	Rexroth mix solenoid
14	Light Green	Rexroth solenoid common (looped internally to Pin 11)
15	-	-
16	Purple / Orange	Chute lower solenoid
17	Yellow / White	Cruise – revs down / Manual throttle – linear actuator
18	Yellow	Cruise – revs up / Manual throttle – linear actuator
19	Green / Brown	Fan on warning light
20	Green / Red	Fan relay terminal 86
21	Purple	Chute raise solenoid
22	Yellow / Pink	N.O. contacts of internal cruise / linear actuator relays
23	White / Orange	Manual pump – linear actuator
24	White	Manual pump – linear actuator
25	Brown	Remote accelerator port – Negative
26	Grey	Remote accelerator port - Signal
27	Orange	Remote accelerator port - +5v
28	Yellow / Purple	N.C. contacts of internal cruise / linear actuator relays
29	Blue	Park brake input
30	Yellow / Red	Service Brake input
31	Green	Neutral input
32	Yellow / Green	Tacho input
33	Yellow / Blue	Reverse Input

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34	Yellow / Black	Spare input 1
35	Yellow / Brown	Spare input 2
36	-	-
37	Orange / Blue	+12v ignition input

Emergency Stop Relay connections

Terminal Number	Wire colour	Function
30	2 x Red	1- Fuse holder with15A fuse; 2- to E/stop switch
87	Orange / Blue	+12v Ignition to control console
86	Blue	From E/stop switch
85	Black	Ground

Fan relay connections

Terminal Number	Wire Colour	Function
30	Red	Fuse holder with 20A fuse
87	Red / Yellow	Positive to fan
87	Green / Brown	Control console pin 19
86	Green / Red	Control console pin 20
85	Black /white	Fan thermo switch

Note: If the hydraulic cooler fan does not require a thermo switch, the following three wires can be joined together at the cooler fan connection:

- Black 3mm wire
- Black 4mm wire
- Black / White 3mm wire

Onboard diagnostic LED's – Inputs (Yellow)

Legend on PCB	Input Function
HALT	Halt / Resume
STOP	Stop
ENG UP	Engine Up
ENG DN	Engine Down
MIX	Mix
DIS	Discharge
CHT UP	Chute Raise
CHT DN	Chute Lower
REMOTE	Remote mode selected
TRAVEL	Travel mode
P/MIX	Plant Mix mode
PB POS	Park Brake Input - positive
PB NEG	Park Brake input - negative
SRVC BK	Service Brake Input
NEU POS	A/T Neutral input - positive
NEU NEG	A/T Neutral input - negative

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Onboard diagnostic LED's – Outputs (Orange)

Legend on PCB	Output Function
CHT DN	Chute Lower
CHT UP	Chute Raise
ENG DN	Engine Down
ENG UP	Engine Up
PUMP A	Pump Actuator Direction A
PUMP B	Pump Actuator Direction B

Onboard diagnostic LED's - Power (Green)

Legend on PCB	Function
12V MAIN	+12v on control board
12V REM	Power to receiver
5V REVS	5v Remote Accelerator

Onboard diagnostic LED's - Overcurrent Faults (Red)

Legend on PCB	Fault / Circuit
FAULT 1	Main regulator
FAULT 2	Mix, Discharge, Dump Valve
FAULT 3	Chute Raise, Chute Lower, Pump Actuator

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Important Installation Information

Through Glass Antenna Installation

Please follow the instructions on the leaflet enclosed within the antenna packaging. The through glass antenna will perform the best when it is located high up on the vehicle and clear of other metallic objects. It is essential to clean the mounting areas thoroughly with the supplied alcohol cleaning pad to ensure maximum adhesion to the glass.

Window tinting can contain metallic film and affect operation of through glass antennas. A small square of the tinting film can be cut away where the antenna is to be mounted, or alternatively, mount the antenna on another window. The tinted strip across the top of some windscreens does not affect antenna performance.

Route the antenna cable from the antenna mounting location to the control console. Excess cable may be coiled up. Pass the cable through the cable gland and plug in to the mating connector on the receiver – hand-tighten only! Allow enough antenna cable inside the control box for the lid to close easily. Once the lid is closed, the cable gland may be hand tightened to hold the antenna cable secure. See Figure 2 for details.

Suggested installation procedure

Mount control box on pedestal or suitable support in cab.

Run wiring harness supplied under floor mat to passenger side of vehicle, making sure that there are no sharp objects that may cut or rub harness.

Locate suitable place in firewall or floor for 32mm cable gland to be fitted.

Using 32mm hole saw cut hole in firewall and fit cable gland if necessary.

Run main harness through cable gland (to first breakout point) and down passenger side of chassis rail towards rear of vehicle. When choosing route for harness avoid excessively sharp turns and sharp objects that may cut or rub harness. Avoid excessive heat sources such as exhaust systems.

Secure main harness using cable ties.

Referring to wiring diagram, connect harness to accessories as optioned.

Fit and wire hydraulic cooler fan as per wiring diagram.

In fuse box locate suitable point to connect line fuses for fan relay (battery feed 20 amp) and control box (ignition feed 10 amp).

Connect black wires to secure and clean earth.

Install through glass antenna as per supplied Instruction sheet

System should now be ready for testing. Please take the time to run through all functions from both the control console and the remote control. Perform adjustments / calibrations if necessary, referring to the relevant sections of this manual.

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Figure 1 – Remote Control Transmitter and Receiver



Program the 12 Dipper switches on the Hand Radio to match the same as shown on the Label shown on the side of the Promix Cab Box.

Top Row is the number of dipper switches showing 1 to 12 the Bottom Row is the switch status 1 is ON and 0 is OFF

For more Hand Remote Dipswitch Setup Information – Click here

Figure 2 – Receiver Antenna Cable Connection and Routing



Figure 3 – Main Control Board



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