7a13 manual

File Name: 7a13 manual.pdf
Size: 2586 KB
Type: PDF, ePub, eBook
Category: Book
Uploaded: 18 May 2019, 13:18 PM
Rating: 4.6/5 from 641 votes.

Status: AVAILABLE

Last checked: 6 Minutes ago!

In order to read or download 7a13 manual ebook, you need to create a FREE account.

Download Now!

eBook includes PDF, ePub and Kindle version

Book Descriptions:

We have made it easy for you to find a PDF Ebooks without any digging. And by having access to our ebooks online or by storing it on your computer, you have convenient answers with 7a13 manual . To get started finding 7a13 manual , you are right to find our website which has a comprehensive collection of manuals listed.
Our library is the biggest of these that have literally hundreds of thousands of different products represented.

Book Descriptions:

7a13 manual

It is one of the first 7000 series plugins.In addition, this voltage is brought out through a front panel connector so it can be measured externally. Either input can be switched to the comparison voltage, In this comparator mode, the offset range is effectively 10,000 divisions.For the lower three digits, a tenturn potentiometer with a mechanical digital readout is used.A 10turn pot for coarse selection combines with a singleturn pot for fine control. The resultant voltage is displayed on a 4digit simplified DVM built around a Fairchild 3814 4 digit DVM controller. For negative values of V C, an opamp polarity inverter circuit is switched in.These are very rare. The 7A11 repair report at amplifier.cd See also the IK1ZYW link below.The plastic gears in this counter dont age well. The plugin can still be used when the counter fails, by using anThe LED readout is much less problematic.Tekscope Vol. 2 No. 5, October 1970 Overall rise time is 3.3 ns. These manuals are available for download and free of charge.Contact and submission information belowSee below for email instructions. It would only be possible with a large scale scanner. Such as a DS70000 or something else that could scan 11.5x100 paper. See email information below be sure to include BAMA in the subject line. Compliments of Shannon Hill. These manuals are available for download and free of charge.Or, you can email me directly with the manual. I accept all formats. This item may be a floor model or store return that has been used. See the seller’s listing for full details and description of any imperfections. Original Manual. NO EXCEPTIONS. Used Very GoodCover has moderate shelfwear and a couple small tears. Pages clean with no marks or writing. Not exlibrary.Please try again.Please try again.Then you can start reading Kindle books on your smartphone, tablet, or computer no Kindle device required.http://designbyjoseph.com/uploads/cag-one-skate-sharpener-manual.xml

- **tektronix 7a13 manual, 7a13 manual.**

Register a free business account To calculate the overall star rating and percentage breakdown by star, we don’t use a simple average. Instead, our system considers things like how recent a review is and if the reviewer bought the item on Amazon. It also analyzes reviews to verify trustworthiness. It incorporates a number of features which make it particularly versatile, especially in multitrace combination with other 7000 Series vertical plugins. The bandwidth is selectable to Full or 5 MHz for best displayed noise conditions for lowfrequency applications. The CMRR is 20,0001 from dc to 100 kHz, derating to 2001 at 20 MHz. The offset voltage is also available as an output for external monitoring. Did you miss your activation email To the point, question 1 It did strike me the AC coupling capacitor at the BNCs, as it has a big metallic body, the input is soldered right there, where I expect this point to be critical in parasitic capacitance, maybe it has to do with the fact that both input capacitors in CH1 and CH2 must be closely matched. Picture and schematic The second question relates to the first amplifier stage where according to the manual NPN Q152 is used as a switch, in a saturated state. Could they have used a JFET instead and why they didnt The dimensions of the cap were dictated by capacity and voltage and perhaps ESR. The cavity where it fits and connects to the switches with shortest possible trace minimize inductance, etc. forced the odd orientation and connection. The 7A18 and 7A26 dual trace amplifiers use similar input coupling capacitors configured the same way. The shielded outside of the capacitor is driven to help prevent EMI pickup. In the case of the 7A13 and presumably 7A22, those capacitors are matched to 0.4% as shown in the parts list to preserve AC common mode rejection. Note that those capacitors are oil filled plastic film units for outstanding performance. At least I think they are oil filled; I have never cut one apart.http://escueladeballet.com/fotos/cafina-alpha-manual.xml

Quote The second question relates to the first amplifier stage where according to the manual NPN Q152 is used as a switch, in a saturated state. Could they have used a JFET instead and why they didnt It is kind of a weird design, isnt it. The differential clamp circuit which is not shown in your excerpt allows Q152 to disconnect the signal if it becomes 1.2 volts positive than the other side and CR150 disconnects it if it becomes 1.2 volts negative compared to the other side. My guess is they could have used JFETs but FET Vgs varies over a much wider range than bipolar Vbe making matching more difficult although this would only have affected the clamp levels. JFET transconductance is also lower making for a softer clamp and lower frequency response. JFETs are also more expensive and noisier; the general rule was to use them only as required. Note that the 7A13 vertical amplifier was specifically designed for fast overload recovery time because of its use as a differential comparator.At least I think they are oil filled; I have never cut one apart. It definitely looks like one, same as oil filled resistors. Just visited tekgroups and found a recent upload by Kurt Rosenfel, Tektronix transformers design and manufacture It also seems to minimize the loop area of the input attenuator circuit, although because this is a high impedance circuit, the increased inductance doesnt matter as much. C1 is most likely a high quality film cap with low Df and soakage for good pulse performance. It could have oil in it but I have no idea. They could have used a ceramic cap to minimize size but it would introduce distortion or error. I would never post a link to an item on ebay that I was looking at purchasing. Today, only 26,000 remain. P.0. Box 500. Beaverton, Oregon 97077 Any questions with respect to the warranty should All requests for repairs and replacement parts This will assure you Number with all requests for parts or service. Oregon.

Printed in the United States of America. All Tektronix, Inc. U.S.A. and foreign TEKTRONIX products covered. TEKTRONIX is a registered trademark of Tektronix, Electrical Characteristics. System Characteristics. Environmental Characteristics Front Panel Description. Test Setup Chart. Familiarization Procedure. General Operating Information Block Diagram Description. Detailed Circuit Description Troubleshooting. Corrective Maintenance. Introduction. Test Equipment Required. Procedure and Index Parts Ordering Information Voltage and Waveform Conditions Index of Mechanical Parts Illustrations. Mechanical Parts List. Accessories. Page Section 1 The 7A13 Vertical PlugIn is a DC coupled differential It may be used as a differential In the differential input mode, the dynamic range allows Commonmode rejection ratio of at least 20,0001 at DC to When used as a differential comparator, the 7A13 has Electrical Characteristics. The electrical characteristics described inTable 11 are Performance Requirement. Deflection Factor. Calibrated Range Gain Ratio. Accuracy. Within 1.5% of GAIN adjusted at 1. Uncalibrated Continuously variable extends TABLE 11 cont. Characteristic. Performance Requirement. Common Mod.e. Signal Range. X10 V c In. X10 V c Out. X10 Vc In. Metal Case Transistors. Integrated Circuits. Fig. 42. Semiconductor lead configuration. If the output DC balance is checked first and is in error, This localizes the trouble to the circuitry between the Troubleshooting Techniques. This troubleshooting procedure is arranged in an order When the defect is located, Control set Since this is not always the case, check the operation of Check the calibra The apparent trouble may only be a Section. Many troubles To isolate a trouble to a Freeze Miller Stephenson, MS240, Tektronix Part. Number 006017301 is recommended. Dry ice or OGas may also be used. Zero Mist Circuit Cooler Typical voltages and Isolating DC Imbalance.

A properly operating os CRT only when the 7A1 3 has a balanced output. The 7A13 Input Amplifier stages to that at an identical point in the If the CRT trace is deflected off the screen as a result of They can be If these limits are not exceed Table 41 Voltage. Difference. Limits. TP360 and TP460. Q340 Collector and Q440 Collector. Q330 Base and Q430 Base. Q300A Collector and Q300B Collector. Q195A Collector and Q195B Collector. Q170 Collector and Q270 Collector. Q152 Emitter and Q252 Emitter. Q130A Emitter and Q130B Emitter. To obtain onscreen positioning of the trace.

As a suggested procedure, check the output DC This localizes the Signal Tracing. A method is described here for check Output Amplifier schematic diagrams. The technique is After the faulty stage is located and the trouble found To signal trace the 7A13 amplifier stages, proceed as T connector and coaxial cables to the 7A1 3 Input connec Touch the test os Check the displayed waveform Disconnect the probe. Then voltage checks may have The following Components which are soldered Transistors including FET's. The best means of If a transistor When troubleshooting using a voltmeter, measure the Some of these voltages are An ohmmeter can be used to check a transistor if the Selecting the XI kO scale on most ohm meters will provide Table 42 contains the normal values of resistance to Table 42 Connections. Resistance Reading That Can Be. Expected Using the R X 1 k. Range. EmitterCollector. High readings both ways. EmitterBase. High reading one way, low BaseCollector. High reading one way, low Test prods from the ohmmeter are first connected to the Thus, the effects of the polarity reversal of the voltage applied Field Effect Transistor Checks. Field Effect T ransistors Diodes.

A diode can be checked for an open or for a Do not check Electrical Parts List for the tolerance of the resistors used The resistance reading should be high after the initial An open capacitor can be The lead configuration is shown Using an ohmmeter, check The relay may be actuated by With the relay If any defective Be sure to check the performance of Table 43 Adjustments. Affected. Section 5. Calibration. Step. Input Mode. Switches. Input R and C, Steps 12 Steps 18, 19, Attenuators. Input Amplifier. DC adjustments, Steps 1 Steps 11, 17, DC adjustments, Steps 1 Steps 17, 20, Gain, Steps 17 Steps 23 Comparison. Voltage. Comparison. Steps 27 Corrective maintenance consists of component Special techniques Obtaining Replacement Parts. Standard Parts. All electrical and mechanical part Tektronix, Inc. Before purchasing or ordering replace Special Parts. In addition to the standard electronic These parts are manufactured or selected by Tektronix. Inc. in accordance with our specifications. These special Most of the mechanical parts Tektronix, Inc. Order all special parts directly from your Ordering Parts. When ordering replacement partsfrom. Tektronix, Inc., include the following information Soldering Techniques The reliability and accuracy of this instrument can be General soldering When soldering on circuit boards A higher wattage soldering iron For metal terminals e.g., switch terminals, poten The penciltype Component Replacement. Disconnect the equipment from the power source Relay Replacement. The relays in the 7A13 are If a relay fails, a replace Office or representative. The eightpin DPDT relays are See the lead configuration Semiconductor Replacement. Transistors should not If removed from Unnecessary replacement of tran Replacement semiconductors should be of the original Two types of mating connectors are used for these If the mating connector is mounted Tektronix, Inc. Order Part No. 040054200.

To replace a pin which is mounted on a circuit board, Then, unsolder the Ream out the hole in Position the pin in the Solder the pin on both sides of To replace one of thesesockets, first Straighten the tabs on the socket Place the new socket in the Do not allow This spring tension can be destroyed by using the Some of the pin connectors are grouped together and These connectors are To provide correct orientation of this Circuit Board and Pushbutton Switch Replacement. If a Part numbers aregiven in the. Mechanical Parts List for either the wired or unwired Components which are mounted on the circuit board See the infor Switch Replacement. Various types of manuallyoperated switches are used The replacement of one of these Refer to the Mechanical Parts List for the part number of For further informa Observe the soldering precautions given previously in Use the exploded The follow Use the following procedure POSITION knob. The V c REFIDENT knob will slide off at Counter lens holder assembly fit loosely in the sub Disconnect these wires from their pin connectors. Attenuator board that fasten the Attenuator board Be sure to save Reverse the order of

BW or Polarity Switches. The procedure is as Switch replacement procedure. Maintenance— 7A13 SN B200000up VARIABLE knobs. LightBulb Replacement. To replace light bulbs in the If possible, use a Service Center for service or repair, attach a tag showing Save and reuse the package in which your instrument was Refer to the following table for carton test strength Carton Test Strength lb Introduction. To assure instrument accuracy, check the calibration Screwdriver adjustments which are accessible without Steps 1 through 7, and 12 Completion of each step in the complete Performance A ShortForm Procedure isgiven priorto the complete This procedure also includes the Therefore, the Short.

Form Procedure can be used as an index to locate a step in This procedure may be Limits, tolerances and A partial calibration is often desirable after replacing a For partial calibra Procedure and start with the nearest test equipment list If any controls CHECK part of the step is not met. If readjustment is Therefore, If only a Performance Check procedure is performed, Special Calibration Fixtures. Special Tektronix calibration fixtures are used only These special Order by part number through your local Tektronix Field. Office or representative. Calibration Equipment Alternatives. Test equipment listed in the Examples of Applicable. Test Equipment column, Table 51, is required to perfor If the exact item of Description. Minimum Specifications. Purpose. Examples of Applicable. Test Equipment Tektronix 7000series main Used throughout pro Oscilloscope. 1 Oscilloscope. 1 Tektronix 7Bseries plugin Used throughout pro Tektronix 7B50 Time Base. PlugIn. Risetime 250 ps or less. Amplitude adjustable from Used for steps 17 and 23. Tektronix Type 109 Pulse. Generator. Generator Calibration. Generator. Repetition rate approx Used for steps 12, 17, 18, Generator. 2 Wave Generator. Sinewave Generator. Frequency, 30 Hz to 50 kHz; Lowfrequency triggering Generator. 2 Oscillator. SineWave Generator. Frequency, 20 MHz to Wave Generator. 2 Wave Generator. Voltmeter. Range 100 mV to 10 V. Accuracy 0.02% or better. Used for steps 12 30, 31 John Fluke Differential Volt Used for calibration only NOT used for performance check. Requires a TM500Series Power Module. Description. Test Equipment Test Fixture. Reed switch with drive coil Used for Step 36. Tektronix Part No. Sensitivity, less than 2 volts Used for steps 4, 5, 6, Attenuation; 10X and 100X. Used for steps 12, 13, 14, Tektronix Type RC Time constant 1 MQ. X 20 pF. Used for step 18. Tektronix Type Provides access to 7A13 Used throughout pro Tektronix Part 067058900. Calibration Fixture. Length 60 ns.

Impedance Used for steps 17, 23, 24, Tektronix 7M11 Delay Line. Length 3.45 ns. Impedance Used for steps 17, 23, 24, Made from Tektronix Part No. Delay 5 ns; connectors. GR; impedance 50 Cl. Used for steps 17 and Tektronix Part No. Connector BNC; im Used throughout pro Tektronix Part No. Connector BNC plug and Used for steps 12, 13, 14, Tektronix Part No. Connector; banana plug Used for steps 12, 13, 14, Tektronix Part No. Connector probe ground Used for steps 10 and 1 1. Tektronix Part No. Description. Test Equipment Impedance 50 Cl; GR to. Used throughout pro Tektronix Part No. Impedance 50 0; con. Used for step 17 and Tektronix Part No. Impedance 50 O; con. Used for step 28 and Tektronix Part No. Connectors GR to BNC Used throughout pro Tektronix Part No. Connectors GR to BNC Used throughout pro Tektronix Part No. Connectors BNC female Used for steps 12, 13, 14, Tektronix Part No. Connectors Dual binding Used for step 13. Tektronix Part No. Connectors BNC male. Used for steps 20, 21, Tektronix Part No. Used for steps 12, 13, 14, Tektronix Part No. Used to adjust variable Xcelite R3323. Screwdriver 1. All plastic rod; 5inches Used to adjust variable Tektronix Part No. All plastic rod; removable Used to adjust variable Tektronix Part No. The step numbers and titles used here correspond to Performance requirements that are listed after the word DC and GAIN ADJUSTMENTS CHECK— No trace shift as VARIABLE knob is pulled to INTERACTION— Repeat step 2. CHECK — Voltmeter reading of 0 volts between TP360 INTERACTION— Repeat step 4 and then step 5. REQUIREMENT— Four divisions vertical deflection at REQUIREMENT— Trace shift should not exceed 0.2 A 50ohm termination is Check both CHECK— With 10 volts applied from the 7A13 V c OUT Compensation R167. CHECK— With 10 volts applied to the 7A1 3 input circuit Resistance R7. CHECK — For a null indication within 5 mV on the

INTERACTION— Repeat step 12. Attenuation Ratio R5E. See procedure for details. See procedure for details.

Resistance R27. CHECK — For a null indication within 5 mV on the INTERACTION— Repeat step 15. C187, R187, C163, Cl 13, C150, C250, C213; REQUIREMENT — System risetime of 3.5 nanoseconds. Check both CHECK— System aberrations using Table 54 in the Check both inputs. Compensation C34, C28A, C28B, C25A, SineWave. Requirement. Input Signal. PP Display Amplitude Mode Rejection at 100 Hz R28G, R5E. REQUIREMENT — With a 100 Hz 50volt squarewave CMRR of 2,0001. Mode Rejection at 10 kHz C28A, C25A. REQUIREMENT — With a 10 kHz 50volt sinewave CMRR of 2.0001. Response. CHECK— Using the 6division signal amplifier CHECK— System risetime, with the trigger amplifier CHECK — System aberration, with the trigger amplifier Response; Full and 5 MHz. CHECK— HighFrequency response should not be CHECK— Upper frequency response limit should be Frequency Response. REQUIREMENT — High frequency response should be Bandwidth Sine Wave Response. REQUIREMENT— Upper frequency response limit CHECK — T race should be 1 division above midscreen. CHECK— V c reading should alternate between 0.000 REQUIREMENT — Null reading at —10 volts within a Control Range. CHECK— For increased reading by at Ieast0.030 but no REQUIREMENT— Trace returns to within 2 divisions The following procedure is arranged in a sequence Steps listed in the This information is particular Insert the 7A13 directly To prevent recalibration of other parts of the instru However, when performing a In the following procedure, a testequipment setup is Each step continues from the equipment setup and External controls or All waveforms shown in this procedure are actual Oscilloscope Camera System and Projected Graticule. The following procedure uses the equipment listed under. If the equipment is substituted, Detailed operating instructions for the test equipment are If in doubt as to the correct Remove the left side Remove the side covers from the 7A13. Insert the PlugIn. Extender between the 7A13 and the connector in the Left.

Vert plugin compartment of the indicator oscilloscope. This list is Indicator Oscilloscope. B Intensity Focus. Calibrator. Rate Calibrator. Vertical Mode. Horizontal Mode. B Trigger Source. Power. Set for welldefined trace Left On see Preliminary. Procedure, step 6. Controls not listed are considered less important and Time Base PlugIn. Triggering. Mode. Coupling. Source. Position. Magnifier. Display Mode. Positive slope region. PP Auto Set so that the trace starts Pushed in. Time Base VOLTS Display 0.000 COARSE and FINE CAL clockwise, in detent. Pushed in. Midrange Midrange Steps 1 through 7 are Calibration Procedure Only Section 2, Operating Instructions, and perform the. Front Panel Adjustments procedure for the VAR. BAL. STEP A TTEN BAL, and X10 BAL adjustments. Balance Preliminary Procedure. Center control R335 see Fig. 52 A to position the trace to It is not necessary Leave the front panel POSITION control at midrange Trig DC. Level Center Signal DC. Level Step Atten. DC Bal Fig. 52. Waveform display obtained showing correct vertical If the shift is down, adjust R173 R335 for this purpose. Step Atten DC Bal control R288 slightly clockwise. If the Bal control R307, in a slightly counterclockwise direction. If the trace shift is down, adjust R307 slightly clockwise. INTERACTION — Repeat steps 1 through 3, as Adjustment This is the final DC Balance control R371 see Fig. 52A. Signal DC Level control R360 see Fig. 52A. Use the GND test DC Level control R380. POSITION Center the display Fig. 53. Waveform display obtained showing correct vertical When performing a complete procedure, change the VOLTS Display 999.9. If the remaining controls need to be checked for proper Procedure. INPUT connector. INPUT Mode switch to DC. Compensation. Check that the. VOLTS Display is set to read 9.999. INPUT Mode switch to V c. Overdrive Thermal Compensation control R167. Dosition. Fig. 54.

Partial view of Input board showing adjustment location Equipment Required When performing a complete calibration procedure, INPUT Mode GND. If the remaining controls need to be checked for proper Procedure except as follows. VOLTS Display 99,99 Attenuation Ratio DC Divider Voltage Output connectorto the Precision DC. Divider Gnd connector. Fig. 55. Closeup view of the Precision

DC Divider interconnec Patch cord connected Black. Lead. Connector. Input. Gnd. Voltage Output. Red. Clip Lead. Adapter. Precision. DC Divider Divider to the pin from which the brownonwhite wire was Use care when making this connection to prevent Calibration Generator AMPL OUTPUT connector. Connect a clip lead adapter to the other end of the cable. Connect the red lead from the clip lead adapter to the. Precision DC Divider Voltage Input connector and con Using the POSITION control, posi Amount of trace shift should not This is the voltage that is. The voltage R8G see Fig. 57 so that the trace is within the given If necessary, readjust R8G. Fig. 57. Attenuator board adjustment locations used in the DC. Input Resistance and Attenuator Ratio Adjustments procedure. Mode switches to GND. Resistance. INPUT connector. Precision DC Voltmeter. INPUT Mode switch to GND. Attenuation Ratio Be sure the 1 megohm Voltage Output connector to Gnd. Mode switches to V r. Amount of trace shift should not. INPUT Mode switch in the DC position and adjust R5E Ratio Leave the other end of the patch Reconnect the brownon Resistance INPUT connector. Precision DC Voltmeter. I. Disconnect the voltmeter. VOLTS Display 0.000 When performing a complete procedure, change the If the remaining controls need to be checked for proper Procedure. Remove the. Plugin Extender and insert the 7A13 directly into the Turn on the indicator oscilloscope. Amplitude Power. On Chg Line 1 connector. Connect a 5 ns coaxial cable from Delay Cable.

Remove the CRT light filter and mount a polarized viewer PUT Narrow pulse amplitude should be 80% or more of This is equal to 6.4 divisions FFIllllllMl. Narrow Pulse Amplitude. Time area Amplitude Sweep rate is 1 Fig. 58. Waveform examples showing correct highfrequency Generator. To meet the system risetime requirement, the narrow pulse With an 8 Amplitude of the generator output should be maintained at 8 divi Calibration Procedure Only When performing step If the instru Performance Check and Calibration Procedure When The tolerance measure When using the. Type 109 as a generator, the tolerance measurement Signal. Applied to. Switch. Settings. Aberration Tolerance 5 Connector To complete the checks Wave Generator as the signal source, set the controls as Repetition Rate. Type 106 Range. Multiplier As is. Amplitude. Not applicable. Fast Rise. Rise. Fully CCW. Amplitude Not applicable. On Time Base PlugIn. Magnifier XI Transition Amplitude and Symmetry controls for a Amplitude control as necessary, to obtain 8 divisions of C250 and C213 are mainly — INPUT adjustments. To Fig. 510. Partial view of the Output board showing location of the adjustments that need to be made to restore the 7A13 Time Base Unit Fig. 59. Location of highfrequency adjustments on the Input PUT Use step 17h with Tables 52 and 53 as guide to The waveforms will Insert the Plug. In Extender between the 7A13 and the indicator os BW 5 MHz. Time Base PlugIn Magnifier. Positive slope region Type 106. Repetition Rate 10 kHz. Range For all the remain Use a 6division peaktopeak waveform amplitude during Keep the waveform positioned Then, repeat step 17 to Fig. 511. Waveform examples obtained when performing the Type 106. Repetition. Rate. Signal. Applied Time Base. Sweep. Adjust Approximate. Time. Domain 6. Procedure Connector Turn off the oscilloscope. Insert the PlugIn Ex Turn on the indicator oscilloscope. DIV switch to 10 mV and the BW switch to 5 MHz. Adjust for best flat top. Reset BW switch to.

FULL for remaining adjustments. Adjust for optimum square corner. Ignore fast Adjust for optimum square corner. Cl 87 Turn off indicator oscilloscope. Remove the PlugIn. Extender and insert the 7A13 directly into the Turn on indicator oscillo Adjust for Adjust for Adjust in equal Cl 63 Cl 13 Cl 50 Repeat steps 17h and 17i. Adjust for optimum Connector. Cl 50. Cl 13 Repeat applicable portions of step 17o. Readjust Repeat steps 17h and 17i. Readjust for optimum Connector Cl 50. Same as given Repeat applicable portions of step 17o. Readjust Set 7A13 for 1 mV and Repeat steps After performing step 20, Cl 87 may need to be The 90% point on the rising portion of the waveform see Fig. 51 1 C for location is the time reference used to determine the time If R196 is adjusted, repeat step 3. When performing a complete procedure, change the Use the 7A13 POSITION BW 5 MHz. TimeBase PlugIn Magnifier. Positive slope region Multiplier control to obtain the 1 kHz output repetition If the remaining controls need to be checked for proper Procedure. Using Table 55 as a guide, check the waveform for a Use a 6 division Repetition Rate. Multiplier. Symmetry. Fast Rise

controls Fully CCW. Hi Amplitude.

https://ayurvedia.ch/3gm30-parts-manual