

AN3792

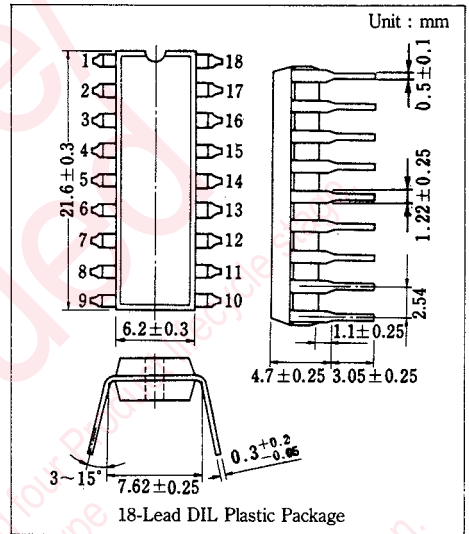
VTR Cylinder Servo Interface Circuit

Outline

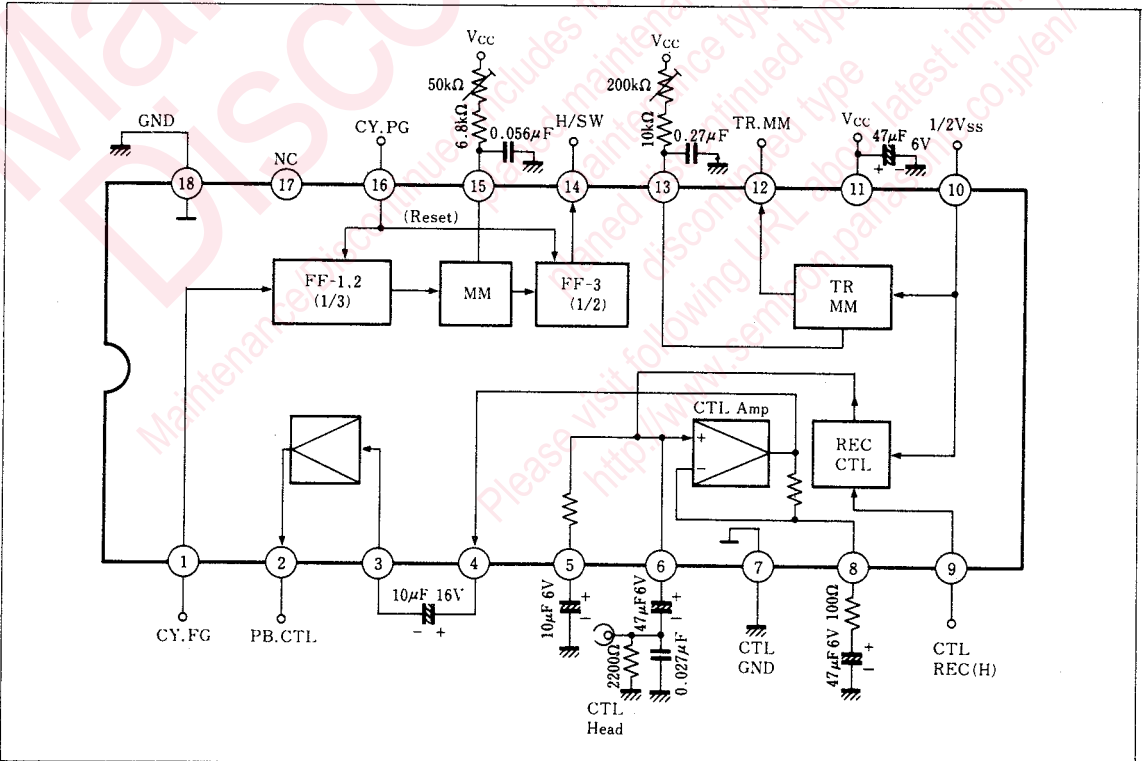
The AN3792 is an integrated circuit designed for VTR cylinder servo interface circuit. It forms VTR servo circuit by combining the AN3794 with the MN6178.

Features

- Supply voltage : $V_{cc}=5V$
- Built-in head-switch signal generator circuit.
(PG and FG signals input individually)
- Built-in control signal processing circuit (REC/PB)



Block Diagram



■ Pin

Pin No.	Pin Name	Pin No.	Pin Name
1	CY FG Input	10	1/2V _{ss} Input
2	PB CTL Output	11	V _{cc}
3	PB CTL Wave forme Input	12	Tracking MM Output
4	PB CTL Amp. Output	13	Tracking MM Control
5	1/2V _{cc}	14	Head SW Output
6	CTL Input(PB)Output(REC)	15	PG MM Control
7	GND(CTL Amp.)	16	CY PG Input
8	CTL Amp. Reverse Input	17	NC
9	REC/PB Select	18	GND

■ Absolute Maximum Ratings (Ta=25°C)

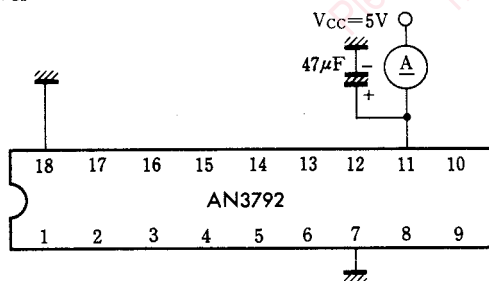
Item	Symbol	Rating	Unit
Supply Voltage	V _{cc}	6	V
Power Dissipation(Ta=70°C)	P _D	100	mW
Operating Ambient Temperature	T _{opr}	-20~+70	°C
Storage Temperature	T _{stg}	-55~+150	°C

■ Electrical Characteristics (Ta=25°C)

Item	Symbol	Test Circuit	Condition	min.	typ.	max.	Unit
Circuit Current	I ₁₁	1	V _{cc} =5V No load	6		14	mA
CY. PG Input Sensitivity	S ₁	2	V _{cc} =5V			1.5	V
CY. FG Input Sensitivity	S ₁₆	3	V _{cc} =5V			1.5	V
PG. MM Delay Time	t ₁₅	4	V _{cc} =5V, C=0.056μF, R=20kΩ	700		870	μs
H/SW Output High Level	V _{OH14}	4	V _{cc} =5V No load	4.6			V
H/SW Output Low Level	V _{OL14}	4	V _{cc} =5V No load			0.4	V
1/2V _{ss} Input Sensitivity	S ₁₀	5	V _{cc} =5V			1.5	V
REC START Changeover Sensitivity	S ₉	5	V _{cc} =5V	3			V
REC. CTL Output High Level	V _{OH6}	5	V _{cc} =5V No load	4			V
REC. CTL Output Low Level	V _{OL6}	5	V _{cc} =5V No load			0.4	V
PB. CTL Amp. Gain	G _{V4}	6	V _{cc} =5V	63		82	dB
Tracking MM Delay Time	t ₁₃	7	V _{cc} =5V, C=0.27μF, R=100kΩ	18		24	ms
PB. CTL Waveform Shaping Input Sensitivity	S ₃	8	V _{cc} =5V	300			mV

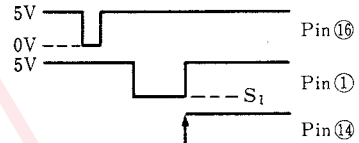
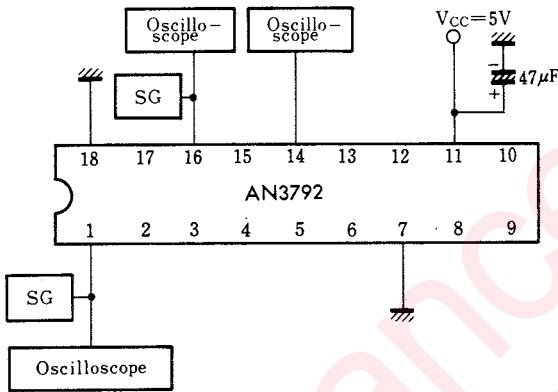
Note : Operating Supply Voltage Range : V_{cc(OPR)}=4.4~5.5V

Test Circuit 1 (I₁₁)



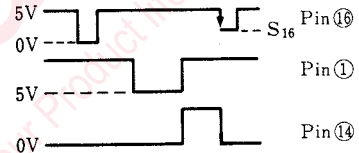
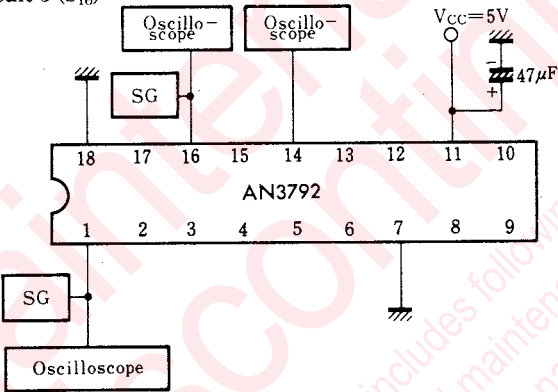
- I₁₁ circuit current
- Flow-in current of pin ⑪
- when 5V voltage is applied to Pin ⑪

Test Circuit 2 (S_1)



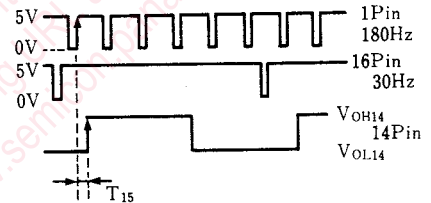
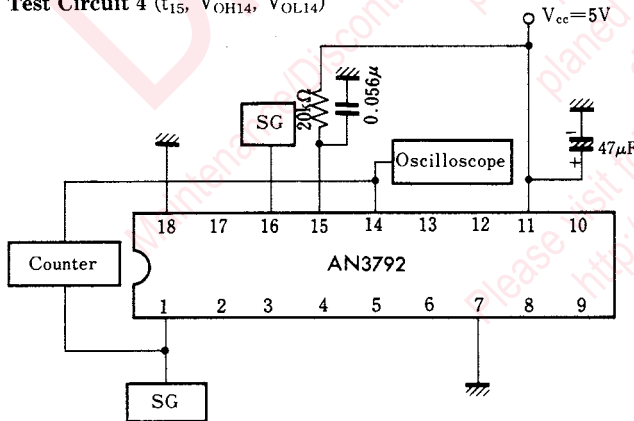
- S_1 CY.FG input sensitivity
The above pulse is supplied to Pin 16. When the pulse is supplied to Pin 1, low level of Pin 1 where Pin 14 is risen is regarded as S_1 .

Test Circuit 3 (S_{16})



- S_{16} CY.FG input sensitivity
The above pulse is supplied to Pin 16. When the pulse is supplied to Pin 1, low level of Pin 1 where Pin 16 is risen and Pin 14 is fallen is regarded as S_{16} .

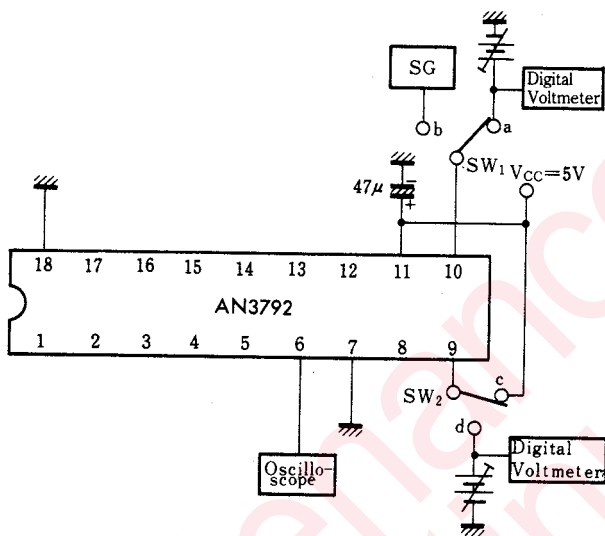
Test Circuit 4 (t_{15} , V_{OH14} , V_{OL14})



- t_{15} PG. MM delay time
Time from rise of Pin 17 input pulse to rise of Pin 14 output
- V_{OH14} H/SW output high level
- V_{OL14} H/SW output low level

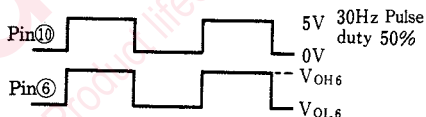
V_{OL14} is high level Pin 14 above. V_{OL14} is low level.

Test Circuit 5 (S_9 , S_{10} , V_{OH6} , V_{OL6})

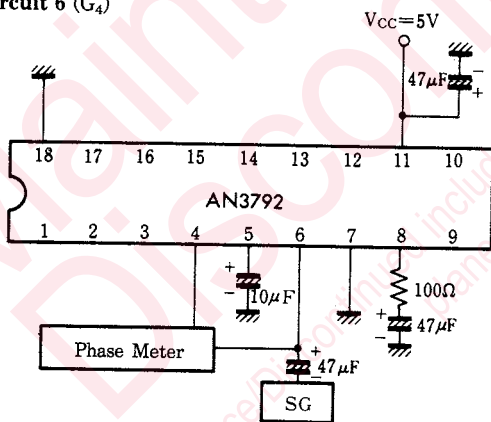


- S_{10} $1/2V_{SS}$ input sensitivity
SW1 and SW2 are set to a and c, respectively. After Pin 10 is shifted from H to L and L to H, lower the voltage of Pin 10. When Pin 6 output is changed, Pin 10 voltage is regarded as S_{10} .
- S_9 REC START changeover sensitivity
SW1 and SW2 are set to b and d, respectively. Pin 10 input signal after lowering Pin 9 voltage from 5V, when output is not supplied to Pin 6, Pin 9 voltage is regarded as S_9 .

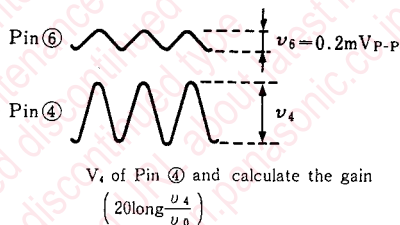
- V_{OH6} REC CTL output high level
- V_{OL6} REC CTL output low level
SW1 and SW2 are set to b and c, respectively. Pin 6 output high level and low level when 30Hz and 5 V_{O-P} pulse is input to Pin 10 are V_{OH6} and V_{OL6} , respectively.



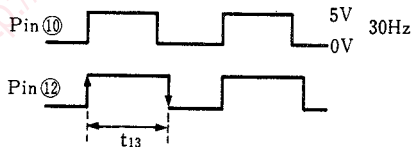
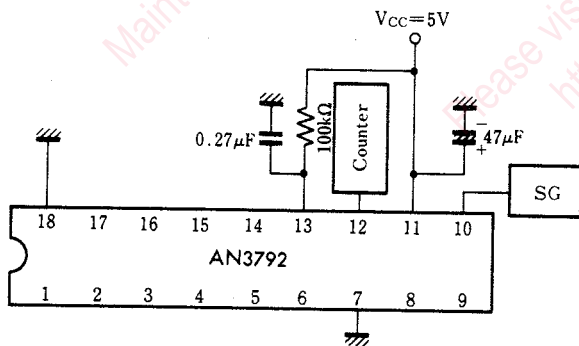
Test Circuit 6 (G_4)



- G_4 PB CTL Amp Gain
Pin 6 input signal Sine waveform 1kHz, Measure the amplification $0.2mV_{P-P}$

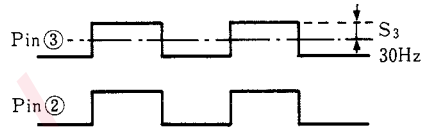
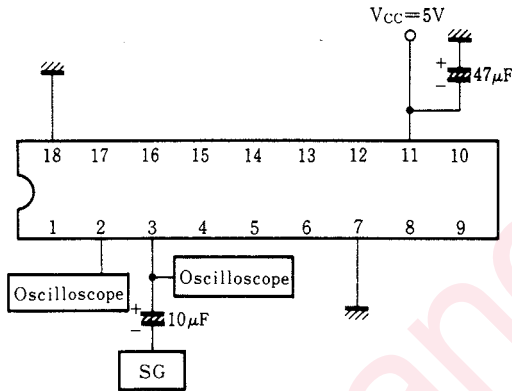


Test Circuit 7 (t_{13})



- t_{13} Tracking MM delay time
Time from rise to fall of Pin 12 output when the above pulse is supplied to Pin 10

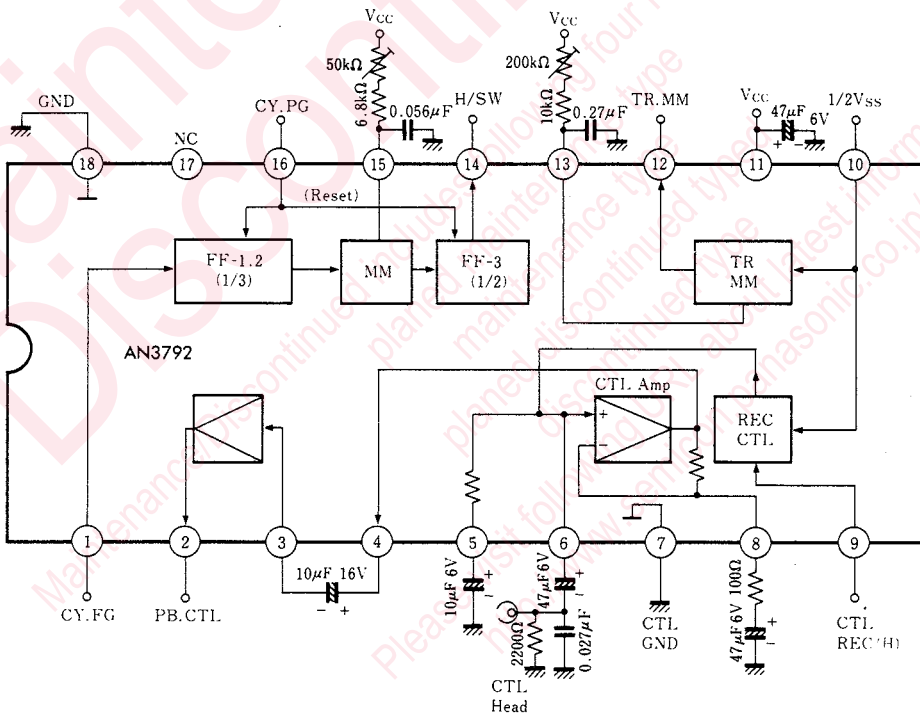
Test Circuit 8 (S₃)



• S₃ PB waveform shaping input sensitivity

After the above 30Hz pulse is input to Pin ③, the amplification is gradually increased from 0. 1/2 amplification of input pulse when the above output starts being output to Pin ② is set to S₃.

■ Application Circuit



• Mono Multi time setting is

$$\left. \begin{matrix} \text{PG MM} \\ \text{Tracking MM} \end{matrix} \right\} T = C \cdot R \ln 2$$

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