Note Corrections

IVC on VS1000

TABLE OF CONTENTS

Introduction	1
Hookup	1
Response controls & checkout	1
Misc. notes	2
Separation of capstan motor power	4
Separation of scanner motor power	6
Modification of IVC scanner servo	8
Remote control (6 pin DIN connector)	9

Index by:

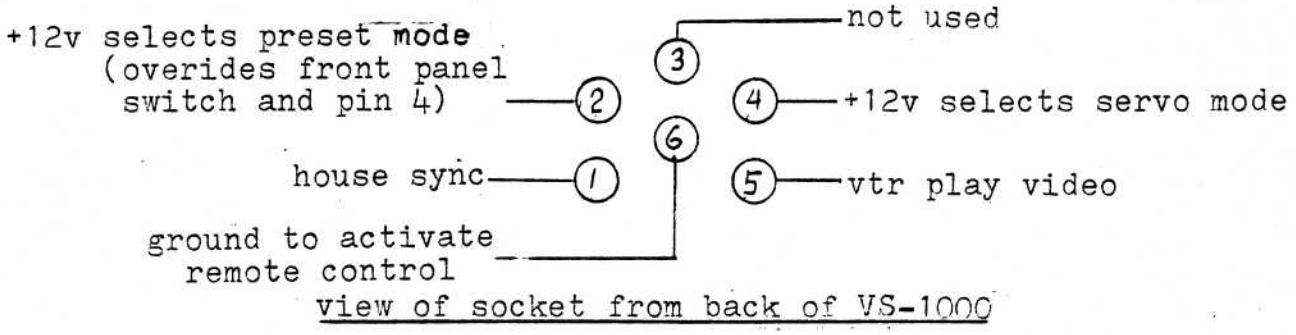
- VSt at IVC
- Control track only for Data recording

Hook-up of the 6P DIN (optional).

USE: In some set-ups it is necessary for the VTR to put out a video signal other than from the tape in standby, record, FF, or rewind. The VS-1000 will attempt to lock these signals by varying the 60Hz output frequency which may produce an off frequency recording or slow down lock-up when play is pressed. A control wire to the VS-1000 solves this problem.

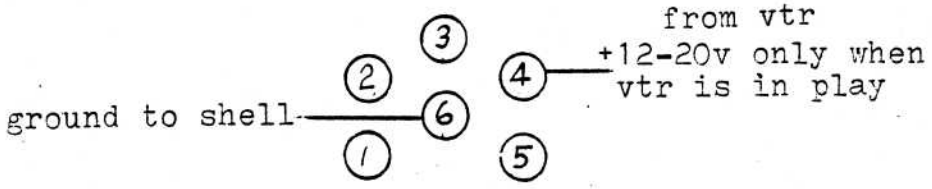
PARTS REQUIRED: 1-Switchcraft 12BL6M; wire; VTR end connector (optional).

HOOK-UP: The VS-1000 contains control input lines which activate the servo function only on command:



view of socket from back of VS-1000

We suggest the following wiring for this purpose:



back view of plug

It may be desirable to have video also come in this connector for quick change purposes. Due to the sensitivity of the VS-1000's sync separator, 1-2V P-P from the VTR may be isolated with a 1K resistor and fed through a short length of unshielded multiconductor wire to this connector. This will somewhat load the video and if quality suffers, simple transistor buffer(s) will be necessary. Usually the video output stage will accept this 1K load if it is placed before the 75ohm source termination resistor.

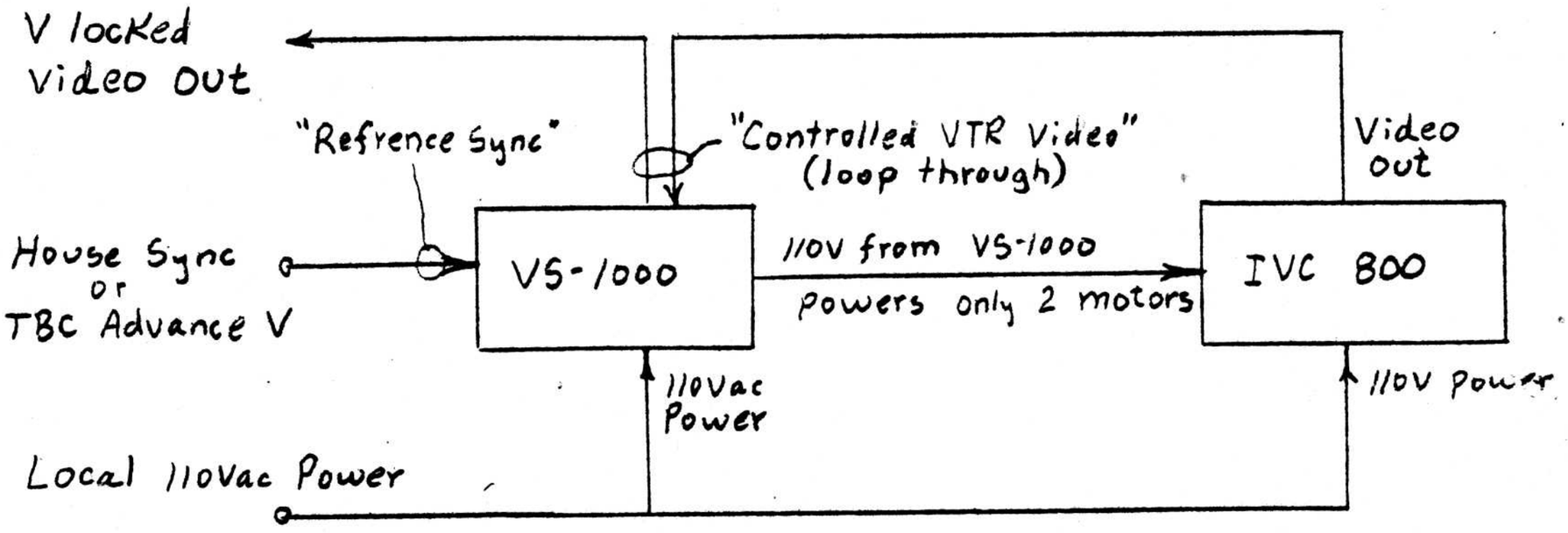
USE OF IVC VTRS ON THE VS-1000.

Scope: This note will describe the minor modifications required in the IVC wiring harness and scanner servo to allow $\pm\frac{1}{2}$ line V-lock when used with the VS-1000.

Background: The VS-1000 is limited to a load of less than 130 watts. This requires separation of the capstan and scanner motors from the wiring harness so that they can be run from the VS-1000. After that the IVC can be V-lock by the VS-1000 but a tight lock cannot be achieved due to interaction with the underdamped scanner servo. The addition of 4 parts to the IVC servo PCB reduces this interaction without any side effects to the normal opperation of the machine.

Modification: The modifications are described in the attached pages.

Set-up: 1) Hook-up as shown below:



2) Set the VS-1000 response controls as follows:

	LowPass	Gain	Rate	Damp
For general use:	6.5	3.0	5.0	7.0
For tighter lock with sacrifice in lock-up time:	6.0	5.0	8.0	10.0
For studying VTRs inherent stability:	10.0	1.0	0	0

3) Thread a tape on the IVC.

4) Turn on the IVC, but do not attempt to move the tape until the head comes up to speed. Set the VS-1000 switches as follows: Lock Phase and Frequency- push in, Monitor, Preset, and Power ON (Note: The VS-1000 has an internal 30 second delay before output power is available).

5) When the head comes up to speed, press play and check that everything runs normally. Switch the VS-1000 Monitor switch to Display (this puts house sync on the tape playbackvideo). The monitor should show the V-sync as a horizontal line drifting slowly up or down and the H-sync as diagonal lines (If the tape speed is very accurate the H-sync will appear as a vertical line drifting left or right).

6) Switch the Preset switch to servo, the V-sync should go to the top or bottom of the screen and stay there. The VTR is now V-locked.

7) The response controls may be optimized for a particular VTR as described in the instructions.

MISC. NOTES:

The VS-1000 Locks playback V-sync to house sync, this has three unusual features compared to V-lock editors:

1) Tape will always be accurately locked to reference V reguardless of crossover position, unlike editors which lock head tach to crossover and therefore drift around with interchange.

2) Mistracking, if it affects V-sync, will deprive the VS-1000 of its tape signal and cause it to not lock. The VS-1000 is well behaved in this respect, but it cannot lock a tape if the V-sync is badly mutilated. Also adjusting the tracking control can unlock the VS-1000 as the control affects the timing of the video. Adjusting tracking slowly is usually satisfactory.

3) Our tests on an early IVC showed a lock-up time of 3-5 seconds from pressing play to V-lock $\pm 1\frac{1}{2}$ line. If V-lock is normally acquired, but it takes several seconds to drift the last 5-10 lines, reduce Low Pass or increase Gain to produce slight overshoot upon acquiring Lock.

4) VTR should not have video input as the resultant E-E signal will cause the VS-1000 to attempt lock and run itself off frequency. If E-E is required, hook-up a control line to the 6Pin DIN connector.

5) The VS-1000 recognizes the lack of video inputs and goes to a fixed frequency, non-lock mode (PRESET). Therefore, snow or no input does not confuse it. Video inputs may be composite video .3-2V P-P, black, or Mix sync .2-5V P-P. V-drive confuses the internal AGC which uses H-sync.

6) The VS-1000 will V-lock the IVC if only the capstan motor is powered from the VS-1000, while satisfactory for most applications the lock is not as tight as above and acquisition can suffer from mistracking. The IVC servo PCB modification is required.

7) The VS-1000 should never be on with the IVC off as the IVC cooling fan supplies the only cooling for the motors run by the VS-1000.

Separation of Power

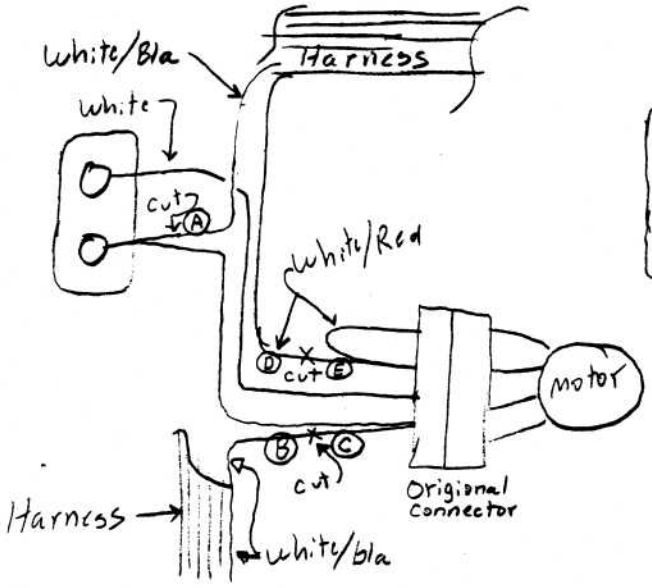
~~Separation of~~ Capstan ~~and Scanner~~ Motor ~~Power~~.

Scope: Although the motors in the IVC plug into the wiring harness, the run capacitor is on the harness side of the plug. Therefore it is necessary to add new plugs so that the motor with capacitor, can be connected either to the IVC harness or external power (ie: VS-1000).

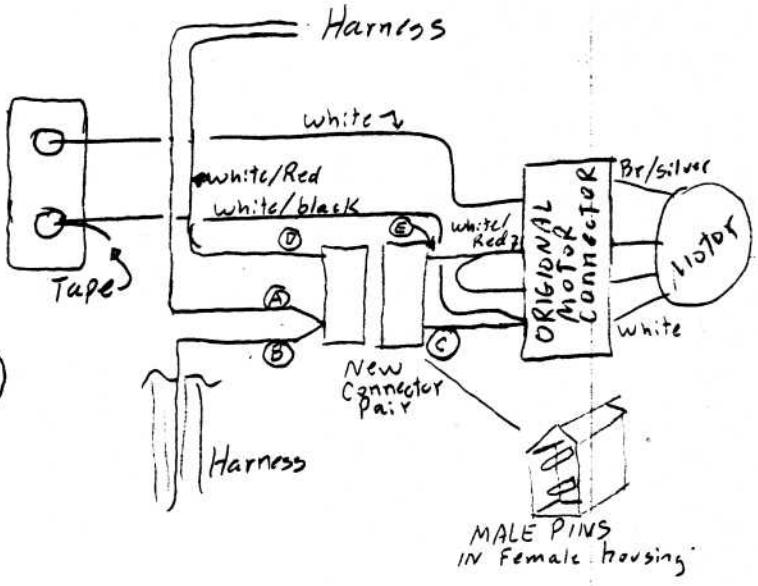
Background: These detailed notes were derived from experience with an early model IVC 800 and variations may be found in later machines or other models. The same principles will apply. Since we did not install a power connector for the motors, we offer no advice in that area.

Capstan Motor:

Origional Pictorial



Change to this



Outline:

1) Cut white/black wire wire from harness to run capacitor. A (Do not cut wh/bla wire from cap to motor)

2) Cut white/black wire (3") from motor connector B C. This is wire to harness not run cap. Leave white/black wire from run capacitor to motor connector intact.

3) Cut white/red wire 3" from motor connector D E.

4) Install 2 wire connector as shown. (we used 2 each, Waldom #1625-3PRT, 3 pairs per package, 4 pairs required).

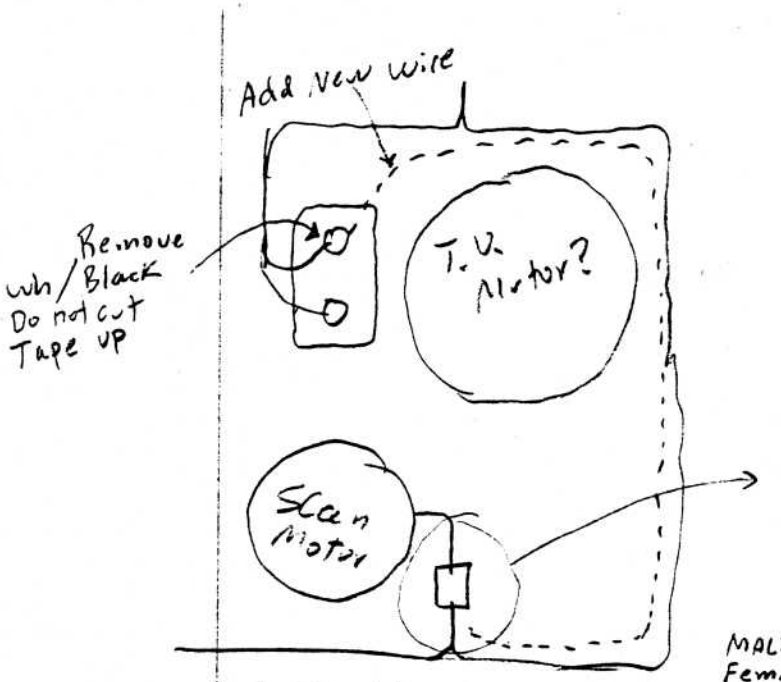
5) VTR wiring is unchanged with new connectors mated. The motor may be unplugged and plugged into external power (VS-1000).

6) Check with ohmmeter to verify that the new motor power line is completely isolated from the chassis and power line.

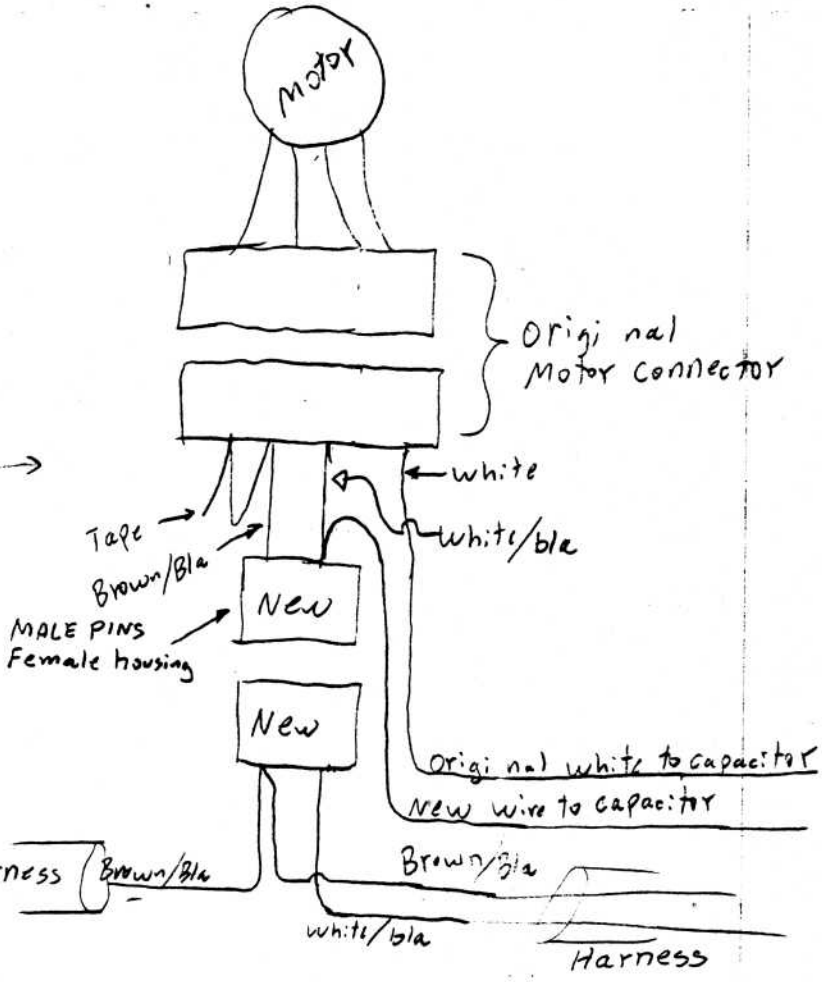
Page 3, Separation of Power

Scanner Motor:

Origional Pictorial



Change to this



Outline:

1) Unclip white/black from motor run capacitor.

2) Run new wire from above motor run capacitor to motor connector (dotted line above).

3) Cut 2 brown/black and 1 white/black wires about 1" from motor connector (do not cut jumper loop).

4) Join 2 brown/black wires from harness on one pin of new connector, put white/black from harness on other pin.

5) Tape 1 brown/black from motor connector, put other brown/black in motor end of new connector.

6) Join new wire to run cap with white/black from motor connector at end pin of new connector.

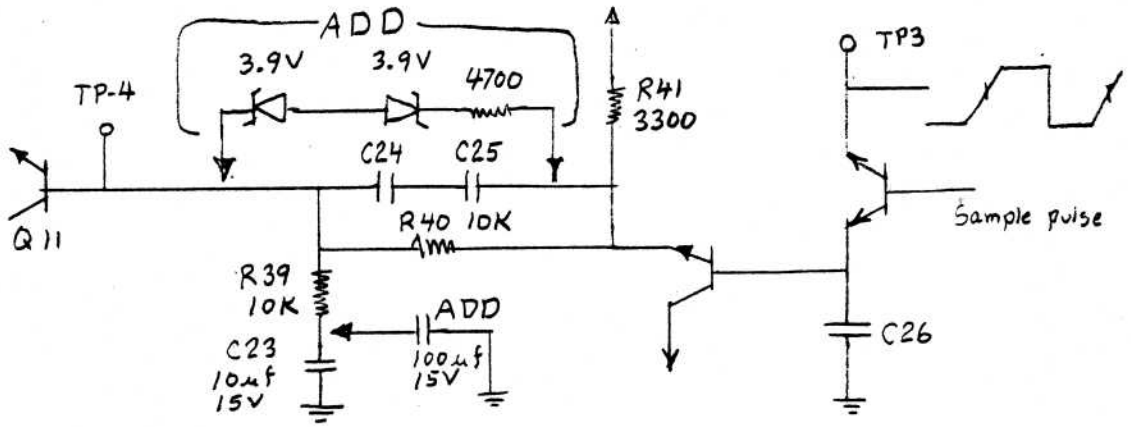
MODIFICATION OF IVC SCANNER SERVO FOR OPTIMUM PERFORMANCE WITH THE VS-1000

Scope: The internal servo in the IVC 800 series vtrs interacts with the VS-1000 and prevents a tight lock. This note describes the addition of one capacator and a zener diode network to eliminate the interaction.

Background: These recommendations are based on experience with one early model IVC 800 and variations may be found in later machines or other models.

Parts required:
2 pc. 3.9v ±5%, 100mw zener diode
1 pc. 4700 ohm ¼w, ±10% resistor
1 pc. 100 µf, 15v capacator

Partial scan servo schematic:
(part numbers are from IVC 800/Dec 72 manual, page 7-7)



Proceedure:
1. Hookup a scope to TP-3, trigger from scanner tach pulses.
2. Put the vtr in the record mode with the tape running.
3. Disconnect input video by turning the sync generator or tuner off. Then reconnect and observe the lockup and damped oscillation as the ramp settles into place.
4. Connect the 100µf capacator across C23.
5. Repeat 3 (above) several times. The servo loop should now be underdamped and much slower.
6. Add the zener diode network across R40.
7. Repeat 3 (above). The servo loop should now behave much like it origionally did during lockup, but will be better damped for small changes (1-200µs).