

AGL MACHINE CONTROL QUICK GUIDE

SURVEY PROCESS:

YOU WILL NEED TO SURVEY THE DITCH IN ORDER TO FIND THE ELEVATION DROP OF THE DITCH. THE ELEVATION DROP IS USED ALONG WITH THE LENGTH OF THE DITCH TO CALCULATE THE GRADE. THE GRADE FORMULA IS AS FOLLOWS:

$$\frac{\text{ELEVATION DROP OF THE DITCH}}{\text{LENGTH OF THE DITCH}} \times 100 = \% \text{GRADE}$$

- SET TRAILER IN THE MIDDLE OF THE FIELD. REMEMBER THE GP2000 HAS A 2000' WORKING RADIUS.
- POINT THE TRAILER UPHILL AND PLACE THE HAND LEVEL ON TRANSMITTER REST PAD AND LEVEL TRAILER. (THE SELF LEVELING BASE HAS TO BE WITHIN 5 DEGREES OF LEVEL. IT WILL AUTOMATICALLY LEVEL ITSELF IF WITHIN DEGREES.)
- DIAL BOTH THE AXIS' TO 0.00. WHEN THE AXIS' GRADES ARE SET TO ZERO THE TRANSMITTER BEAMS A LEVEL PLANE OF LIGHT ½" WIDE, 360 DEGREES. THIS LEVEL PLANE OF LIGHT WILL BE USED TO DETERMINE ELEVATIONS FROM THE GROUND TO THE LEVEL PLANE OF LIGHT.
- POWER UP LASER (ON GP2000 MODELS CONNECT POWER CORD TO LASER TRANSMITTER BASE AND CONNECT RED ALIGATOR CLIP TO 12 VOLTS POSITIVE AND BLACK TO 12 VOLTS NEGATIVE ON A 12 VOLT BATTERY.) (ON EAGL MODELS PUSH THE POWER BUTTON TO TURN ON THE LASER) ONCE THE LASER HAS LEVELED ITS SELF, THE TOP HEAD WILL START ROTATING.

****NOTE****

- THE TRANSMITTER HAS A FAILSAFE SWITCH THAT AUTOMATICALLY SHUTS OFF THE TRANSMITTER AND RELEVELS IF IT SENSES THE TRANSMITTER OR TRAILER HAS BEEN BUMPED OR HIGH WIND VIBRATION PERSISTS. IT IS ADVISED IN HIGH GUSTY WIND CONDITIONS TO DRIVE A TRUCK OR LARGE VEHICLE ON THE WIND SIDE OF THE TRANSMITTER. THIS WILL PROTECT THE TRAILER/TRANSMITTER FROM WIND VIBRATION.
- NEXT YOU WILL NEED TO GET ELEVATION READINGS FROM THE DITCH DISCHARGE POINT AND THE DITCH ORIGIN. THIS CAN BE OBTAINED BY USING EITHER THE SCRAPER AND HYDRAULIC MAST/RECIEVER OR BY USING THE HAND HELD LASER RECIEVER WITH GRADE ROD
- INSTRUCTIONS ARE AS FOLLOWS:

SURVEY BY SCRAPER AND HYDRAULIC MAST/RECIEVER

- DRIVE SCRAPER TO THE DISCHARGE END OF THE DITCH. PLACE THE BLADE ON THE GROUND. **(PLACE A STAKE AT THIS POINT TO INDICATE A DISCHARGE SURVEY POINT.)** RAISE OR LOWER THE HYDRUALIC MAST UNTIL A SOLID ON GRADE LIGHT IS OBTAINED ON THE IN-CAB LIGHT DISPLAY BOX. WRITE THE ELEVATION READING THAT CROSS BAR IS POINTING TO.
- PICK UP THE SCRAPER BLADE AND DRIVE TO THE ORIGIN OF THE DITCH. (THE HIGH END – PLACE A STAKE AT THIS POINT TO INDICATE HIGH END SURVEY POINT.) FOLLOW THE SAME PROCEDURE AS DONE AT THE DISCHARGE END. NOTE THE NEW ELEVATION READING.
- BY SUBTRACTING THE TWO RECORDED ELEVATIONS, YOU WILL CALCULATE THE ELEVATION DROP OF THE DITCH.
- MEASURE THE LENGTH OF THE DITCH

GRADE FORMULA EXAMPLE

$$\frac{\text{ELEVATION DROP OF DITCH} - 2.5'}{\text{LENGTH OF DITCH} - 2500} \times 100 = 0.10 \text{ PERCENT RATE}$$

- DIAL ON THE AXIS THE EXACT NUMBER THAT YOU CALCULATE OUT.
- POINT THE POSITIVE AXIS ARROW UPHILL AND PARALLEL TO THE DITCH YOU ARE WORKING IN.
- USE ALIGNMENT SIGHTS ON THE TRANSMITTER TO ALIGN AXIS PARALLEL TO DITCH

****IMPORTANT****
REMEMBER TO POINT THE AXIS ARROW UPHILL AND PARALLEL TO THE DITCH YOU ARE WORKING WITH.

SETTING MAST FOR DEPTH OF CUT

- DRIVE SCRAPER TO DISCHARGE SURVEY POINT OF THE DITCH AND SET THE BLADE ON THE GROUND. **(THIS SHOULD BE THE EXACT SAME POINT AS WHERE THE SURVEY READING WAS TAKEN, THE STAKED POINT.)** MOVE THE MAST UNTIL YOU RECEIVE THE SOLID ON GRADE LIGHT. BY DOING THIS YOU ARE SETTING THE LASER RECEIVER TO INDICATE THAT THIS IS WHERE YOU WANT THE BOTTOM OF THE DITCH.
- NEXT PICK UP THE BLADE. **(DO NOT MOVE THE MAST.)** DRIVE UP THE DITCH TO THE HIGH END SURVEY POINT. SET THE BLADE DOWN AT THE SURVEY POINT. IF EVERYTHING IS SET UP AND CALCULATED PROPERLY, YOU SHOULD RECEIVE A SOLID ON GRADE LIGHT WHEN THE BLADE TOUCHES THE GROUND. (BY DOING THIS PROCEDURE YOU SET THE DEPTH OF THE CUT

AND CHECK TO MAKE SURE THE DITCH COMES OUT OF THE GROUND AT THE POINT YOU SURVEYED ON THE HIGH END. THIS INDICATES EVERYTHING IS OK AND YOU CAN NOW START TO CUT.)

- UNPLUG OR SHUT OFF THE MAST HOSES. ANY UNNOTICED VERTICAL MOVEMENT OF THE MAST WILL CHANGE THE DEPTH OF THE DITCH.
- IF YOU WISH TO MAKE THE DITCH DEEPER THAN PREVIOUSLY CALCULATED, THEN RAISE THE HYDRAULIC MAST BY THE AMOUNT YOU WANT TO MAKE THE DITCH DEEPER. (EXAMPLE: YOU WANT TO MAKE THE DITCH 1/10' DEEPER THAN THE ORIGINAL SETTING. RAISE THE MAST 1/10'. THE BLADE THEN WILL LOWER 1/10' TO RECIEVE THE SOLID ON GRADE LIGHT.)
- IF YOU WISH TO MAKE THE DITCH SHALLOWER, SIMPLY LOWER THE MAST FROM THE ORIGINAL DEPTH OF CUT SETTING. BY DOING THIS YOU MINIMIZE THE AMOUNT OF DIRT MOVED. YOU CAN ALWAYS MAKE THE DITCH DEEPER.

OMNI 7 AND 360 RECIEVER
FOR 1997 MODEL 322 DISPLAYS AND NEWER

FLASHING
SLOW ▼ LIGHT-----OFF SENSOR HIGH – BUT LAST TIME YOU
WERE ON SENSOR YOU WERE HIGH

FLASHING
FAST ▼ LIGHT-----HIGH BUT WITHIN 3/10' OF ONGRADE

SOLID ▼ LIGHT-----HIGH BUT WITHIN 1/10' OF ONGRADE

SOLID ▬ LIGHT-----ON GRADE

SOLID ▲ LIGHT-----LOW BUT WITHIN 1/10' OF ONGRADE

FAST ▲ LIGHT-----LOW BUT WITHIN 3/10' OF ONGRADE
FLASHING

SLOW ▲ LIGHT-----OFF SENSOR LOW – BUT LAST TIME YOU WERE
ON SENSOR, YOU WERE LOW – RAISE BLADE
IMMEDIATLY

AGL LASER SET-UP INSTRUCTIONS

	DISTANCE IN FEET										
	250	500	1000	1320 1/4 mi.	1500	2000	2640 1/2 mi.	3000	3500	3960 3/4 mi.	5280 1 mi.
0.1	0.040	0.020	0.010	0.008	0.007	0.005	0.004	0.003	0.003	0.003	0.002
0.2	0.080	0.040	0.020	0.015	0.013	0.010	0.008	0.007	0.006	0.005	0.004
0.3	0.120	0.060	0.030	0.023	0.020	0.015	0.011	0.010	0.009	0.008	0.006
0.4	0.160	0.080	0.040	0.030	0.027	0.020	0.015	0.013	0.011	0.010	0.008
0.5	0.200	0.100	0.050	0.038	0.033	0.025	0.019	0.017	0.014	0.013	0.009
0.6	0.240	0.120	0.060	0.045	0.040	0.030	0.023	0.020	0.017	0.015	0.011
0.7	0.280	0.140	0.070	0.053	0.047	0.035	0.027	0.023	0.020	0.018	0.013
0.8	0.320	0.160	0.080	0.061	0.053	0.040	0.030	0.027	0.023	0.020	0.015
0.9	0.360	0.180	0.090	0.068	0.060	0.045	0.034	0.030	0.026	0.023	0.017
1.0	0.400	0.200	0.100	0.076	0.067	0.050	0.038	0.033	0.029	0.025	0.019
1.1	0.440	0.220	0.110	0.083	0.073	0.055	0.042	0.037	0.031	0.028	0.021
1.2	0.480	0.240	0.120	0.091	0.080	0.060	0.045	0.040	0.034	0.030	0.023
1.3	0.520	0.260	0.130	0.098	0.087	0.065	0.049	0.043	0.037	0.033	0.025
1.4	0.560	0.280	0.140	0.106	0.093	0.070	0.053	0.047	0.040	0.035	0.027
1.5	0.600	0.300	0.150	0.114	0.100	0.075	0.057	0.050	0.043	0.038	0.028
1.6	0.640	0.320	0.160	0.121	0.107	0.080	0.061	0.053	0.046	0.040	0.030
1.7	0.680	0.340	0.170	0.129	0.113	0.085	0.064	0.057	0.049	0.043	0.032
1.8	0.720	0.360	0.180	0.136	0.120	0.090	0.068	0.060	0.051	0.045	0.034
1.9	0.760	0.380	0.190	0.144	0.127	0.095	0.072	0.063	0.054	0.048	0.036
2.0	0.800	0.400	0.200	0.152	0.133	0.100	0.076	0.067	0.057	0.051	0.038
2.1	0.840	0.420	0.210	0.159	0.140	0.105	0.080	0.070	0.060	0.053	0.040
2.2	0.880	0.440	0.220	0.167	0.147	0.110	0.083	0.073	0.063	0.056	0.042
2.3	0.920	0.460	0.230	0.174	0.153	0.115	0.087	0.077	0.066	0.058	0.044
2.4	0.960	0.480	0.240	0.182	0.160	0.120	0.091	0.080	0.069	0.061	0.045
2.5	1.000	0.500	0.250	0.189	0.167	0.125	0.095	0.083	0.071	0.063	0.047
2.6	1.040	0.520	0.260	0.197	0.173	0.130	0.098	0.087	0.074	0.066	0.049
2.7	1.080	0.540	0.270	0.205	0.180	0.135	0.102	0.090	0.077	0.068	0.051
2.8	1.120	0.560	0.280	0.212	0.187	0.140	0.106	0.093	0.080	0.071	0.053
2.9	1.160	0.580	0.290	0.220	0.193	0.145	0.110	0.097	0.083	0.073	0.055
3.0	1.200	0.600	0.300	0.227	0.200	0.150	0.114	0.100	0.086	0.076	0.057
3.1	1.240	0.620	0.310	0.235	0.207	0.155	0.117	0.103	0.089	0.078	0.059
3.2	1.280	0.640	0.320	0.242	0.213	0.160	0.121	0.107	0.091	0.081	0.061
3.3	1.320	0.660	0.330	0.250	0.220	0.165	0.125	0.110	0.094	0.083	0.063
3.4	1.360	0.680	0.340	0.258	0.227	0.170	0.129	0.113	0.097	0.086	0.064
3.5	1.400	0.700	0.350	0.265	0.233	0.175	0.133	0.117	0.100	0.088	0.066
3.6	1.440	0.720	0.360	0.273	0.240	0.180	0.136	0.120	0.103	0.091	0.068
3.7	1.480	0.740	0.370	0.280	0.247	0.185	0.140	0.123	0.106	0.093	0.070
3.8	1.520	0.760	0.380	0.288	0.253	0.190	0.144	0.127	0.109	0.096	0.072
3.9	1.560	0.780	0.390	0.295	0.260	0.195	0.148	0.130	0.111	0.098	0.074
4.0	1.600	0.800	0.400	0.303	0.267	0.200	0.152	0.133	0.114	0.101	0.076
4.1	1.640	0.820	0.410	0.311	0.273	0.205	0.155	0.137	0.117	0.104	0.078
4.2	1.680	0.840	0.420	0.318	0.280	0.210	0.159	0.140	0.120	0.106	0.080
4.3	1.720	0.860	0.430	0.326	0.287	0.215	0.163	0.143	0.123	0.109	0.081
4.4	1.760	0.880	0.440	0.333	0.293	0.220	0.167	0.147	0.126	0.111	0.083
4.5	1.800	0.900	0.450	0.341	0.300	0.225	0.170	0.150	0.129	0.114	0.085
4.6	1.840	0.920	0.460	0.348	0.307	0.230	0.174	0.153	0.131	0.116	0.087
4.7	1.880	0.940	0.470	0.356	0.313	0.235	0.178	0.157	0.134	0.119	0.089
4.8	1.920	0.960	0.480	0.364	0.320	0.240	0.182	0.160	0.137	0.121	0.091
4.9	1.960	0.980	0.490	0.371	0.327	0.245	0.186	0.163	0.140	0.124	0.093
5.0	2.000	1.000	0.500	0.379	0.333	0.250	0.189	0.167	0.143	0.126	0.095
5.1	2.040	1.020	0.510	0.386	0.340	0.255	0.193	0.170	0.146	0.129	0.097
5.2	2.080	1.040	0.520	0.394	0.347	0.260	0.197	0.173	0.149	0.131	0.098
5.3	2.120	1.060	0.530	0.402	0.353	0.265	0.201	0.177	0.151	0.134	0.100
5.4	2.160	1.080	0.540	0.409	0.360	0.270	0.205	0.180	0.154	0.136	0.102
5.5	2.200	1.100	0.550	0.417	0.367	0.275	0.208	0.183	0.157	0.139	0.104
5.6	2.240	1.120	0.560	0.424	0.373	0.280	0.212	0.187	0.160	0.141	0.106
5.7	2.280	1.140	0.570	0.432	0.380	0.285	0.216	0.190	0.163	0.144	0.108
5.8	2.320	1.160	0.580	0.439	0.387	0.290	0.220	0.193	0.166	0.146	0.110
5.9	2.360	1.180	0.590	0.447	0.393	0.295	0.223	0.197	0.169	0.149	0.112
6.0	2.400	1.200	0.600	0.455	0.400	0.300	0.227	0.200	0.171	0.152	0.114

ELEVATION DROP IN FEET

ELEVATION DROP IN FEET

GRADOPLANE 2000 AXIS ALIGNMENT

Gunsight axis alignment pins

Note: Arrow decal indicating + end of axis.

Alignment Instructions: Align gunsight axis alignment pins parallel to ditch with positive end of axis (+ arrow decal) pointing uphill.

Positive (uphill) direction of grade (overhead view)

DITCH direction flow

EAGL-310, EAGL-310XR AXIS ALIGNMENT

For S/N's EU0474 and higher

Axis Indicator

"Y" axis switch panel

"X" axis switch panel

Instructions: Using the axis indicator on the switch panel, position the Eagl 3 so the positive direction of the grade axis indicator being used is pointed toward the uphill direction of ditch. (Note: remember a negative grade can be set into the switch panel. The above instructions indicate a positive single grade application.)

(overhead view)

DITCH direction flow

The formula to determine % grade for distance and elevation drop not listed on this chart:

$$\frac{\text{elevation drop}}{\text{distance}} \times 100 = \text{percent grade}$$

DITCH (cross sectional view)

length of ditch (distance)

elevation drop

NOTE: All grades are rounded to nearest 1/1000th.