

"Cheap and Dirty" conversion for Military M28 machines

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Many military model 28's are showing up in amateur hands through various sources. Unfortunately, many of these machines (Mark III) are geared for the Navy 107 W.P.M. speed (75 Baud) and cannot be put on the "normal" (60, 75, or 100 W.P.M.) speeds by a simple change of the motor gear set, as would be the case if it had been originally geared for one of the "normal" speeds. The reason for this is that a different intermediate gear ("C" in Fig. 1) and mainshaft driven gear ("D") are used on these typing units. To make matters more confusing, the Teletype Corp. parts book identifies these two different intermediate gears ("C") as #163440 - "7.0 and 7.5 unit code", and #163440 - "7.42 unit code". This is extremely misleading, as the "7.0/7.5 unit code" gear is used only with three different speeds! (66 W.P.M. (50 baud) 7.5 unit; Navy 71 W.P.M. (50 baud) 7.0 unit; and Navy 107 W.P.M. (75 baud) 7.0 unit code.) First we will discuss the "normal" conversion method, and then "Craigs Special".

Table I lists the gear numbers that should be installed for the various indicated speeds. To convert the Navy machines requires that the mainshaft in the typing unit be removed from the machine and gear "D" be changed. You can of course replace gear "E", Gear "F", and Cam "G" if you wish at the same time, but it's not necessary and would be quite costly. The transmitting speed will be correct, but still 7.0 unit code rather than 7.42, or 7.5. If you type slower than the keyboard capability no one will know the difference anyway! As you can imagine, this could turn into quite a formidable job! Plan on spending a couple of hours if you've not done this before. You will require the parts book and the adjustment manual to do this job properly, unless you happen to be a Teletype repairman.

Now - you say you don't want to get this involved in the "innards" of the machine? Well, if all you are interested in is normal 60 W.P.M. amateur operation or European 66 W.P.M. (50 baud) speeds for that rare DX, then here's the "cheap and dirty" conversion:

To obtain 60 W.P.M. operation, install #163440 (48 tooth) intermediate gear (called the "7.42 unit code" gear) in place of the original intermediate gear, and install a 66 (or 71) W.P.M. motor gear set #163504 (composed of #163461 18 tooth pinion and #163462 117 tooth gear). this combination will yield a typing unit mainshaft speed of 420.2 R.P.M. (420 r.p.m. is "ideal" for 60 speed). The keyboard speed will also be correct (45.45 baud), but of course will still be 7.0 unit code.

For 50 baud operation, reinstall the original intermediate gear #163460 55 tooth in place of the #163440 gear. The shaft speed is now correct for 50 baud, again with a 7.0 unit code (71 W.P.M.) and is compatible with any 50 baud machines which of course include so called 66 and 67 speeds.

Naturally, if any other speed is desired, (75 or 100), it will be necessary to change the mainshaft gear (s) as described earlier.

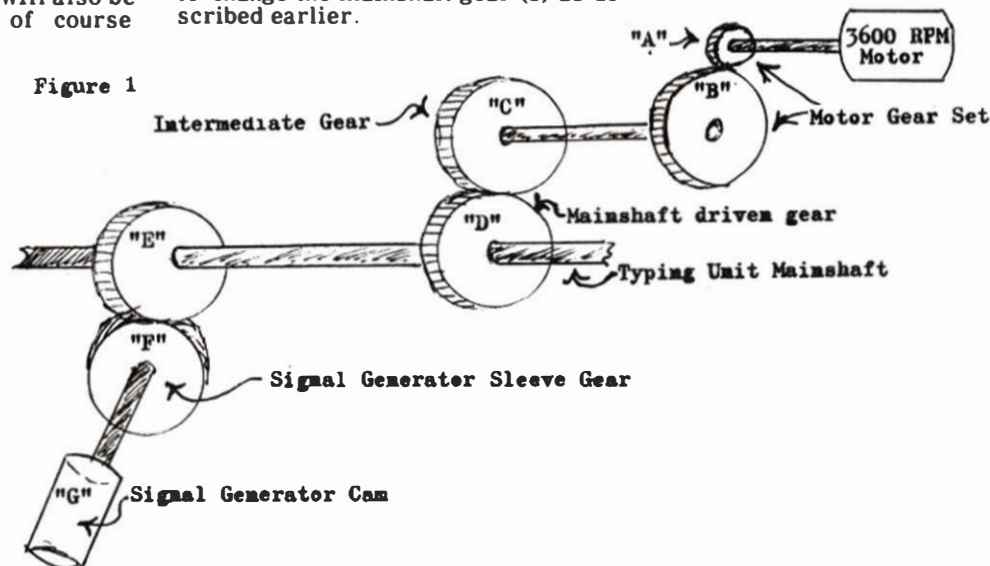


TABLE I

WPM	Code	GPH	Baud	Receiving	Gear Set	Gear	Gear	Gear	Gear	Gear	Cam	Notes
	Units		Rate	Shaft RPM	(A+B)	A	B	C	D	E	F	
60	7.42	368	45.45	420	161293	159278 (14T)	159279 (96T)	163440 (48T)	163390 (60T)	150441 (21T)	154032 (24T)	154154 U.S. Commercial Speed
65	7.00	390	45.45	420	161293	159278 (14T)	159279 (96T)	163440 (48T)	163390 (60T)	163503 (26T)	163519 (28T)	Western Union Speed
67	7.42	404	50.0	462.2	152766	152765 (13T)	152764 (81T)	163440 (48T)	163390 (60T)	150441 (21T)	154032 (24T)	154154 U.S. inter-operation w/european Speed
66	7.50	400	50.0	461.5	163504	163461 (18T)	163462 (117T)	163460 (55T)	163459 (66T)	178764 (26T)	178787 (30T)	178795 European Speed
71	7.00	428	50.0	461.5	163504	163461 (18T)	163462 (117T)	163460 (55T)	163459 (66T)	163503 (26T)	163519 (28T)	163368 U.S. Navy Speed
75	7.42	460	56.88	526.5	161294	159281 (17T)	159282 (93T)	163440 (48T)	163390 (60T)	150441 (21T)	154032 (24T)	154154 U.S. Commercial Speed
100	7.42	600	74.2	685.7	161295	159284 (20T)	159285 (84T)	163440 (48T)	163390 (60T)	150441 (21T)	154032 (24T)	154154 U.S. Commercial Speed
107	7.00	643	75.0	692.3	163505	163463 (24T)	163464 (104T)	163460 (55T)	163459 (66T)	163503 (26T)	163519 (28T)	163368 U.S. Navy Speed