The group G is isomorphic to the group labelled by $[\,40, 4\,]$ in the Small Groups library.

Ordinary character table of $G \cong C5 : Q8$:

	$1a$	$4a$	$2a$	$20a$	$20b$	$10a$	$10b$	$5a$	$5b$	$20c$	$20d$	$4b$	$4c$
χ_1	1	1	1	1	1	1	1	1	1	1	1	1	1
χ_2	1	-1	1	-1	-1	1	1	1	1	-1	-1	-1	1
χ_3	1	-1	1	-1	-1	1	1	1	1	-1	-1	1	-1
χ_4	1	1	1	1	1	-2	-2	2	2	1	1	-1	-1
χ_5	2	0	-2	0	0	-2	-2	2	2	0	0	0	0
χ_6	2	0	-2	$E(20)^{13}-E(20)^{17}$	$-E(20)^{13}+E(20)^{17}$	$-E(5)^2-E(5)^3$	$-E(5)-E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$-E(20)+E(20)^9$	$E(20)-E(20)^9$	0	0
χ_7	2	0	-2	$-E(20)^{13}+E(20)^{17}$	$E(20)^{13}-E(20)^{17}$	$-E(5)^2-E(5)^3$	$-E(5)-E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(20)-E(20)^9$	$-E(20)+E(20)^9$	0	0
χ_8	2	0	-2	$-E(20)+E(20)^9$	$E(20)-E(20)^9$	$-E(5)-E(5)^4$	$-E(5)^2-E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$-E(20)^{13}+E(20)^{17}$	$E(20)^{13}-E(20)^{17}$	0	0
χ_9	2	0	-2	$E(20)-E(20)^9$	$-E(20)+E(20)^9$	$-E(5)-E(5)^4$	$-E(5)^2-E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(20)^{13}-E(20)^{17}$	$-E(20)^{13}+E(20)^{17}$	0	0
χ_{10}	2	2	2	$E(5)^2+E(5)^3$	$E(5)^2+E(5)^3$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(5)+E(5)^4$	$E(5)+E(5)^4$	0	0
χ_{11}	2	2	2	$E(5)+E(5)^4$	$E(5)+E(5)^4$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(5)^2+E(5)^3$	$E(5)^2+E(5)^3$	0	0
χ_{12}	2	-2	2	$-E(5)^2-E(5)^3$	$-E(5)^2-E(5)^3$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$-E(5)-E(5)^4$	$-E(5)-E(5)^4$	0	0
χ_{13}	2	-2	2	$-E(5)-E(5)^4$	$-E(5)-E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	$-E(5)^2-E(5)^3$	$-E(5)^2-E(5)^3$	0	0

Trivial source character table of $G \cong C5 : Q8$ at $p = 2$:

Normalisers N_i	N_1			N_2			N_3			N_4	N_5	N_6
p-subgroups of G up to conjugacy in G	P_1			P_2			P_3			P_4	P_5	P_6
Representatives $n_j \in N_i$	$1a$	$5a$	$5b$	$1a$	$5a$	$5b$	$1a$	$5a$	$5b$	$1a$	$1a$	$1a$
$1\cdot\chi_1 + 1\cdot\chi_2 + 1\cdot\chi_3 + 1\cdot\chi_4 + 2\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	8	8	8	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 1\cdot\chi_6 + 1\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 1\cdot\chi_{13}$	8	$4*E(5)^2+4*E(5)^3$	$4*E(5)+4*E(5)^4$	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 1\cdot\chi_{11} + 0\cdot\chi_{12} + 1\cdot\chi_{13}$	8	$4*E(5)+4*E(5)^4$	$4*E(5)^2+4*E(5)^4$	0	0	0	0	0	0	0	0	0
$1\cdot\chi_1 + 1\cdot\chi_2 + 1\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	4	4	4	4	4	4	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 1\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 1\cdot\chi_{13}$	4	$2*E(5)^2+2*E(5)^3$	$2*E(5)+2*E(5)^4$	4	$2*E(5)^2+2*E(5)^3$	$2*E(5)+2*E(5)^4$	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 0\cdot\chi_{13}$	4	$2*E(5)+2*E(5)^4$	$2*E(5)^2+2*E(5)^4$	4	$2*E(5)+2*E(5)^4$	$2*E(5)^2+2*E(5)^3$	0	0	0	0	0	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	2	2	2	2	2	2	2	2	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 1\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	2	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	2	$E(5)+E(5)^4$	$E(5)^2+E(5)^3$	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 1\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	2	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	2	$E(5)^2+E(5)^3$	$E(5)+E(5)^4$	0	0	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	2	2	0	0	0	0	0	0	2	0	0
$1\cdot\chi_1 + 1\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	2	2	2	2	2	0	0	0	0	2	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	2	2	2	2	2	2	2	2	2	0	0	2
$1\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13}$	1	1	1	1	1	1	1	1	1	1	1	1

$P_1 = Group([()]) \cong 1$

$P_2 = Group([(1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40)]) \cong C2$

$P_3 = Group([(1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong C4$

$P_4 = Group([(1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong C4$

$P_5 = Group([(1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40), (1,3,4,6)(2,3,7,9)(5,40,11,37)(8,34,15,39)(10,38,17,32)(12,36,19,30)(14,28,21,35)(16,22,23,33)(18,31,25,24)(20,29,27,22)]) \cong C4$

$P_6 = Group([(1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong Q8$

$N_1 = Group([(1,5,2,4,7)(3,13,9,6)(5,32,11,38)(8,35,15,28)(10,40,17,37)(12,24,19,31)(14,34,21,39)(16,27,23,20)(18,36,25,30)(22,26,29,33), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong C5 : Q8$

$N_2 = Group([(1,2,4,7)(3,13,9,6)(5,32,11,38)(8,35,15,28)(10,40,17,37)(12,24,19,31)(14,34,21,39)(16,27,23,20)(18,36,25,30)(22,26,29,33), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong C5 : Q8$

$N_3 = Group([(1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40), (1,2,4,7)(3,13,9,6)(5,32,11,38)(8,35,15,28)(10,40,17,37)(12,24,19,31)(14,34,21,39)(16,27,23,20)(18,36,25,30)(22,26,29,33)]) \cong C5 : Q8$

$N_4 = Group([(1,2,4,7)(3,13,9,6)(5,32,11,38)(8,35,15,28)(10,40,17,37)(12,24,19,31)(14,34,21,39)(16,27,23,20)(18,36,25,30)(22,26,29,33), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong Q8$

$N_5 = Group([(1,13,4,6)(2,3,7,9)(5,40,11,37)(8,34,15,39)(10,38,17,32)(12,36,19,30)(14,28,21,35)(16,22,23,33)(18,31,25,24)(20,29,27,22), (1,4)(2,7)(3,9)(5,11)(6,13)(8,15)(10,17)(12,19)(14,21)(16,23)(18,25)(20,27)(22,29)(24,31)(26,33)(28,35)(30,36)(32,38)(34,39)(37,40)]) \cong Q8$

$N_6 = Group([(1,2,4,7)(3,13,9,6)(5,32,11,38)(8,35,15,28)(10,40,17,37)(12,24,19,31)(14,34,21,39)(16,27,23,20)(18,36,25,30)(22,26,29,33), (1,3,4,9)(2,6,7,13)(5,10,11,17)(8,14,15,21)(12,18,19,25)(16,22,23,29)(20,26,27,33)(24,30,31,36)(28,34,35,39)(32,37,38,40)]) \cong Q8$