The group G is isomorphic to the alternating group A8.
Ordinary character table of $G \cong$ A8:

	$1a$	$2a$	$2b$	$3a$	$3b$	$4a$	$4b$	$5a$	$6a$	$6b$	$7a$	$7b$	$15a$	$15b$
χ_1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
χ_2	7	−1	3	4	1	−1	1	2	0	−1	0	0	−1	−1
χ_3	14	6	2	−1	2	2	0	−1	−1	0	0	0	−1	−1
χ_4	20	4	4	5	−1	0	0	0	1	1	−1	−1	0	0
χ_5	21	−3	1	6	0	1	−1	1	−2	0	0	0	1	1
χ_6	21	−3	1	−3	0	1	−1	1	1	0	0	0	$-E(15)^7 - E(15)^{11} - E(15)^{13} - E(15)^{14}$	$-E(15) - E(15)^2 - E(15)^4 - E(15)^8$
χ_7	21	−3	1	−3	0	1	−1	1	1	0	0	0	$-E(15) - E(15)^2 - E(15)^4 - E(15)^8$	$-E(15)^7 - E(15)^{11} - E(15)^{13} - E(15)^{14}$
χ_8	28	−4	4	1	1	0	0	−2	1	−1	0	0	1	1
χ_9	35	3	−5	5	2	−1	−1	0	1	0	0	0	0	0
χ_{10}	45	−3	−3	0	0	1	1	0	0	0	$E(7) + E(7)^2 + E(7)^4$	$E(7)^3 + E(7)^5 + E(7)^6$	0	0
χ_{11}	45	−3	−3	0	0	1	1	0	0	0	$E(7)^3 + E(7)^5 + E(7)^6$	$E(7) + E(7)^2 + E(7)^4$	0	0
χ_{12}	56	8	0	−4	−1	0	0	1	0	−1	0	0	1	1
χ_{13}	64	0	0	4	−2	0	0	−1	0	0	1	1	−1	−1
χ_{14}	70	−2	2	−5	1	−2	0	0	−1	1	0	0	0	0

Trivial source character table of $G \cong$ A8 at $p = 3$:

Normalisers N_i	N_1								N_2					N_3				N_4				
p-subgroups of G up to conjugacy in G	P_1								P_2					P_3				P_4				
Representatives $n_j \in N_i$	$1a$	$2b$	$2a$	$4b$	$4a$	$5a$	$7a$	$7b$	$1a$	$2a$	$2b$	$4a$	$5a$	$1a$	$2c$	$2a$	$2b$	$1a$	$2c$	$2a$	$2b$	$4a$
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 1\cdot\chi_5 + 1\cdot\chi_6 + 1\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	63	3	−9	−3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 1\cdot\chi_2 + 0\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 0\cdot\chi_{13} + 1\cdot\chi_{14}$	153	9	9	1	−3	3	−1	−1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 1\cdot\chi_{13} + 1\cdot\chi_{14}$	225	−3	9	−1	−3	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 1\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	45	−3	−3	1	1	0	$E(7)^3 + E(7)^5 + E(7)^6$	$E(7) + E(7)^2 + E(7)^4$	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 1\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	45	−3	−3	1	1	0	$E(7) + E(7)^2 + E(7)^4$	$E(7)^3 + E(7)^5 + E(7)^6$	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 1\cdot\chi_{13} + 1\cdot\chi_{14}$	162	6	−6	0	−2	−3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	90	6	18	0	2	0	−1	−1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 1\cdot\chi_{13} + 0\cdot\chi_{14}$	135	3	15	1	3	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 1\cdot\chi_{13} + 0\cdot\chi_{14}$	99	−5	3	−1	−1	−1	1	1	9	−3	1	1	−1	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 1\cdot\chi_2 + 0\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	27	7	3	1	−1	2	−1	−1	9	3	1	−1	−1	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	111	−1	15	−1	−1	1	−1	−1	6	0	2	−2	1	0	0	0	0	0	0	0	0	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 1\cdot\chi_{13} + 0\cdot\chi_{14}$	93	5	−3	1	1	−2	2	2	6	0	2	2	1	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 1\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	21	1	−3	−1	1	1	0	0	6	0	−2	0	1	0	0	0	0	0	0	0	0	0
$0\cdot\chi_1 + 1\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 1\cdot\chi_{14}$	105	9	−7	1	−3	0	0	0	0	0	0	0	0	3	−1	1	−3	0	0	0	0	0
$1\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	15	3	7	1	3	0	1	1	0	0	0	0	0	3	1	1	3	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 1\cdot\chi_{14}$	105	−3	1	−1	−3	0	0	0	0	0	0	0	0	3	1	−1	−3	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 1\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	105	−3	17	−1	1	0	0	0	0	0	0	0	0	3	−1	−1	3	0	0	0	0	0
$0\cdot\chi_1 + 0\cdot\chi_2 + 1\cdot\chi_3 + 1\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	34	6	10	0	2	−1	−1	−1	4	2	0	0	−1	1	1	1	1	1	1	1	−1	−1
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 1\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	28	4	−4	0	0	−2	0	0	1	1	1	1	1	1	−1	1	−1	1	−1	1	1	−1
$1\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
$0\cdot\chi_1 + 1\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 0\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	7	3	−1	1	−1	2	0	0	4	2	0	0	−1	1	−1	1	−1	1	−1	1	−1	1
$0\cdot\chi_1 + 0\cdot\chi_2 + 0\cdot\chi_3 + 0\cdot\chi_4 + 0\cdot\chi_5 + 0\cdot\chi_6 + 0\cdot\chi_7 + 0\cdot\chi_8 + 1\cdot\chi_9 + 0\cdot\chi_{10} + 0\cdot\chi_{11} + 0\cdot\chi_{12} + 0\cdot\chi_{13} + 0\cdot\chi_{14}$	35	−5	3	−1	−1	0	0	0	5	−3	1	−1	0	2	0	−2	0	2	0	−2	0	0

$P_1 = Group([()]) \cong 1$
$P_2 = Group([(6,8,7)]) \cong$ C3
$P_3 = Group([(2,3,5)(6,8,7)]) \cong$ C3
$P_4 = Group([(6,8,7),(2,3,5)]) \cong$ C3 x C3

$N_1 = AlternatingGroup([1..8]) \cong$ A8
$N_2 = Group([(1,2,3,4,5),(6,8,7),(1,2)(7,8)]) \cong$ A5 : S3
$N_3 = Group([(2,3,5)(6,8,7),(6,8,7),(3,5)(6,7),(1,4)(2,6,3,8,5,7)]) \cong$ S3 x S3
$N_4 = Group([(6,8,7),(1,4)(2,3)(6,8,7),(1,4)(2,6)(3,8)(5,7)]) \cong$ (S3 x S3) : C2