1096-VJ-1222 **Weam M. Al-Tameemi** (weam.altameemi@tamiu.edu*), 5201 University Blvd., LBV 312, Laredo, TX 78041, and **Robert R. Kallman** (kallman@unt.edu), 1155 union Circle 311430, Denton, TX 76203. *R^nx G(n) is Algebraically Determined.* Preliminary report.

Let G be a Polish group. G is algebraically determined Polish group if given any Polish group L and an algebraic isomorphism f : L -> G, then f is a topological isomorphism. Let M(n;R) = $R^{(n)^2}$ be all n x n matrices with coefficients in R, and let the group G in the above definition be the natural semidirect product R^nx G(n), where n >= 2 and G(n) is one of the following groups: either the general linear group GL(n;R) = A in M(n;R) | det(A)is not zero, or the special linear group SL(n;R)=A in GL(n;R) | det(A) = 1, or |SL(n;R)| = A in GL(n;R) | |det(A)| = 1, or GL^+(n;R) = A in GL(n;R) | det(A) $>$ 0. We will prove that the natural semidirect product R^nx G(n) is an algebraically determined Polish group. In addition, a key intermediate result that requires a fair amount of labor is to prove that f^{-1}(SO(n;R)) is an analytic subgroup of L, where SO(n;R) is the n x n rotation group with determinant one and SO(n;R)subset of SL(n;R)subset of G(n) for every n >= 2. The proofs are somewhat delicate, for there are nontrivial natural semidirect products that are not algebraically determined. For example, the natural semidirect product R^3 x SO(3;R) surprisingly has a discontinuous automorphism. Also, GL(n;R) is not algebraically determined Polish group. (Received September 13, 2013)